

## Britain (1970 - 2006): From Gluttony to Fear

### Public Discourse

Reassured by Britain's progressive Swann legislation, newspapers shifted their attention to issues other than antibiotics. Of these there was no lack: following the 1968 student protests, the early 1970s were characterised by an explosion of new activism. Dismissive of the "'softly-softly' reformism of the 1960s,"<sup>1</sup> a new generation of British activists operated outside of traditional political structures and favoured symbolic protest designed to provoke media interest. In 1971, Friends of the Earth UK (FoE) made a spectacular debut by dumping 1,500 non-returnable bottles outside of the British Schweppes-headquarters.<sup>2</sup> Regarding intensive farming, the 1970s saw the rise of radical animal rights activism. Emerging from anti-blood sports protest and quoting authors from Ruth Harrison to Peter Singer, the Animal Liberation Front (ALF) engaged in illegal and occasionally violent animal rights protest following 1976.<sup>3</sup>

At the same time, fears of global overpopulation and environmental degradation gave rise to a number of international British bestsellers: inspired by Paul Ehrlich's *Population Bomb*, Barbara Ward published *Spaceship Earth* in 1966. In her book, Ward argued for a fundamental ecological reform of developmental and technological politics. Responding to Ward, the editors of *The Ecologist* published *A Blueprint for Survival* ahead of the 1972 United Nations Conference on Human Environment in Stockholm. The *Blueprint's* fundamental message was that the doctrine of unlimited economic growth had failed.<sup>4</sup> Going through four reprints in one year, E.F. Schumacher's *Small is Beautiful* stoked further doubts about conventional theories of economic growth in 1973.<sup>5</sup> Serving as president of the Soil Association since 1970, Schumacher was an influential former Keynesian economist, who had worked alongside William Beveridge. In *Small is Beautiful*, Schumacher advocated downsizing modern economies to an 'appropriate' scale.<sup>6</sup>

However, agricultural antibiotics were neither high on activists' agendas nor a central issue in environmentalist bestsellers. During the early 1970s, the campaign against agricultural antibiotic-use fell victim to an increasingly fragmented environmentalist agenda: while FoE championed single-issue campaigns against pollution and whaling, a plethora of organisations focused on animal welfare. Meanwhile, the Soil Association concentrated mostly on the promotion of 'pure' organic food. Although

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<sup>1</sup>Adam Lent, *British Social Movements since 1945. Sex, Colour, Peace and Power* (Basingstoke and New York: Palgrave, 2001), p. 97, Meredith Veldman, *Fantasy, the Bomb and the Greening of Britain. Romantic Protest, 1945-1980* (Cambridge: Cambridge University Press, 1994), p. 205.

<sup>2</sup>Lent, *British Social Movements since 1945. Sex, Colour, Peace and Power*, p. 100.

<sup>3</sup>Ibid., p. 103.

<sup>4</sup>Veldman, *Fantasy, the Bomb and the Greening of Britain. Romantic Protest, 1945-1980*, p. 228.

<sup>5</sup>Ibid., p. 299.

<sup>6</sup>Ibid., pp. 292-99.

different groups still criticised their use, agricultural antibiotics were no longer a common denominator holding together diverse environmental and consumer fears.

The fragmentation of environmentalist agendas was mirrored in the British media. Previously uniting antibiotic activism, the *Guardian* and the *Observer* only printed a small number of articles addressing agricultural antibiotics.<sup>7</sup> In spite of criticism by the Vegetarian Society,<sup>8</sup> both newspapers seemed satisfied with the post-Swann situation. The *Times* expressed similar sentiments: although it was concerned about rising antimicrobial resistance, the *Times* reverted to the pre-Swann paradigm of distinguishing between medical and agricultural antibiotic-use. As a consequence, the newspaper limited resistance reporting to human medicine<sup>9</sup> and continued to print commercials for agricultural antibiotics.<sup>10</sup> Rather self-righteously, the *Times* also criticised foreign nations for failing to implement Swann legislation.<sup>11</sup> Unconcerned about the absence of comparable British studies, it reported that the Veterinary College of Ireland had found antibiotic residues in 7% of analysed Irish veal carcasses and resistant bacteria in 39% of pig and 37% of cattle carcasses in 1972.<sup>12</sup> When chloramphenicol-resistant typhoid strains emerged in Mexico, the *Times* condemned “indiscriminate” Mexican antibiotic use and reminded readers that “few other countries”<sup>13</sup> had introduced British Swann standards. Happy to criticise Mexican chloramphenicol use, the *Times* remained remarkably sanguine, when BVA opposition prevented the passing of British chloramphenicol restrictions in 1974.<sup>14</sup>

Public complacency regarding agricultural antibiotics only began to fade following the mid-1970s. Triggering antibiotic fears’ renaissance, new studies indicated that the Swann bans were ineffective. Published in *Nature* in 1975, a British study of antibiotic resistance showed that all analysed pigs carried resistant organisms. In 41% of tested animals, all sampled organisms were resistant to the now restricted tetracyclines.<sup>15</sup> In the same year, another study in *British Medical Journal (BMJ)* blamed resistance on “indiscriminate use of antibiotics, mainly in animal husbandry”.<sup>16</sup> One year later,

<sup>7</sup>Cf. Wayland Young, ‘Pollution a ‘Guardian’ special report’, *Guardian*, 06.10.1970, p. 14.

<sup>8</sup>Alan Long, ‘Food’, *Observer*, 19.07.1970, p. 8; cf. also; Alan Long, ‘Farmers and Food’, *Observer*, 08.02.1970, p. 23; Alan Long, ‘Poisoning from foods’, *Observer*, 14.11.1971, p. 12.

<sup>9</sup>Cf. ‘The drugs doctors are reluctant to prescribe’, *Times*, 02.02.1972, p. 8; Hugh Jolly, ‘Fear, like colds, can be catching’, *Times* 22.05.1974, p. 12; ‘Bacteriology: Antibiotic resistance’, *Times*, 30.05.1974, p. 18; ‘Sewage blamed for new bacteria danger’, *Times*, 23.12.1970, p. 1; ‘Public health: Resistant bacteria’, *Times*, 02.09.1974, p. 14.

<sup>10</sup>Cf. Commercial Hindustan Antibiotics LTD, ‘A Dream Come True’, *Times*, 30.11.1970, p. XVIII; Commercial ICI, ‘Innovation Care International’, *Times*, 22.09.1972, p. III.

<sup>11</sup>In 1972, a group of scientists referred to Swann as a model for future British pesticide regulation; cf. G.F. Burnett et al., ‘Preventing misuse of pesticides’, *Times* 23.11.1972, p. 19.

<sup>12</sup>‘Antibiotics: ‘Farm control needed’, *Times*, 03.03.1972, p. 14; the article referred a report in the *Journal of the Irish Medical Association* from February, 1972, p. 75.

<sup>13</sup>‘Antibiotics: Resistant typhoid strain’, *Times*, 04.08.1972, p. 14.

<sup>14</sup>Cf. Pearce Wright, ‘Curb on use of an antibiotic is questioned’, *Times* 01.08.1974, p. 2.

<sup>15</sup>H. W Smith, ‘Persistence of Tetracycline Resistance in Pig *E. Coli*’, *Nature*, 258/5536 (1975), pp. 628-30.; cf. also ‘Bacteriology: Resistance to antibiotics’, *Times*, 22.12.1975, p. 8.

<sup>16</sup>C. L. Hartley and M. H. Richmond, ‘Antibiotic Resistance and Survival of *E. Coli* in the Alimentary Tract’, *British Medical Journal*, 4/5988 (1975), p. 71.; cf. also ‘Bacteriology: Antibiotic resistance’,

former Netherthorpe Committee member R. Braude claimed that Swann's "only positive achievement (...) was that it removed the public anxiety."<sup>17</sup> According to Braude, rising British antibiotic consumption and resistance showed that Swann had failed. While Braude considered antibiotic bans misguided in the first place, he accused Swann of not tackling veterinarians' prescription practices: "The veterinarians' ambition to control all aspects of animal production should not have been yielded to."<sup>18</sup>

In addition to bacterial resistance, food safety concerns drew renewed attention to antibiotic residues. Writing for the *Times* in November 1974, Josée Doyère demanded "sound [safety] guarantees"<sup>19</sup> for feed additives and expressed concern about farmyard pharmaceutical trading. Praising German food safety measures, Doyère hoped that EEC members would agree on common residue limits of pharmaceuticals in food.<sup>20</sup> One year later, the British Consumers' Committee called for improved antibiotic residue monitoring of British milk. Committee members were concerned that official tests were too slow to stop contaminated milk from being sold.<sup>21</sup> This fear was echoed by the *Observer's* Michael Denny, who praised the benefits of DIY dairying: "because you can see to it that your milk is not full of pesticides and antibiotics."<sup>22</sup>

Meanwhile, other activists used residue fears to draw attention to intensive farming's persistent animal welfare problems. Using *Animal Machines* rhetoric, campaigners called for bans of "antibiotics, hormones, arsenic (sic) or 'any other substance to promote unnatural development.'" <sup>23</sup> Reporting on the National Society for the Abolition of Factory Farming (NSAFF), the *Times* warned that "somewhere in Britain a livestock farm is being watched."<sup>24</sup> Employing a public relations firm and using litigation to generate publicity, the NSAFF was indeed adopting strategies pioneered by FoE and Greenpeace.<sup>25</sup>

However, the initial resurgence of antibiotic-concern failed to provoke widespread protest. There were several reasons for this: on the one hand, many former antibiotic-campaigners were either genuinely satisfied with Swann or unwilling to

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*Times*, 15.10.1975, p. 14; 'Bacteriology: Drug resistance', *Times*, 23.09.1976, p. 16; 'Bacteriology: Antibiotic resistance', *Times* 13.07.1978, p. 19; 'Antibiotics: Bacterial resistance', *Times*, 04.11.1978, p. 16.

<sup>17</sup>R. Braude, 'Antibiotics in Animal Feeds in Great Britain', *Journal of Animal Science*, 46 (1978), p. 1434.

<sup>18</sup>*Ibid.*, p. 1428.

<sup>19</sup>Josée Doyère, 'Sound guarantees needed on additives and hygiene', *Times*, 07.11.1974, p. VI.

<sup>20</sup>*Cf. Ibid.*

<sup>21</sup>*Cf.* Hugh Clayton, 'Report says drugs given to cows may be in milk', *Times*, 13.02.1975, p. 3.

<sup>22</sup>Michael Denny, 'The milk of kindness', *Observer* (Sunday Plus), 27.05.1979, p. 40; one month earlier, the *Observer* had printed a positive review of the Japanese anti-chemical whistleblower publication *Compound Pollution*; cf. Mary Frankland, 'Poison scare for Japanese', *Observer*, 01.06.1975, p. 5.

<sup>23</sup>Hugh Clayton, 'Animal lovers keep their eyes on farmers', *Times*, 17.11.1975, p. 18.

<sup>24</sup>Hugh Clayton, 'Public relations and private eyes take on the factory farmers', *Times*, 24.05.1976, p. 17.

<sup>25</sup>*Cf. Ibid.*

jeopardize the hard-won compromise by calling for further reforms. On the other hand, antibiotic protest remained fragmented. Similar to the late 1950s, physicians and scientists concentrated on antibiotic resistance, consumers and journalists on residues in food and animal activists on welfare problems. Once again, reformers were dependent on external events to break public and official lethargy – they did not have to wait for long.

Following the late 1970s, a seemingly endless series of scandals reactivated general concern about agricultural antibiotics. In May 1979, the cover of the popular *Radio Times* showed a friendly piglet lying on straw. While the headline asked “Should this little piggy go to market?”, a second caption in the style of cigarette packs read: “Health Warning. Meat And Poultry May Seriously Affect Your Health.”<sup>26</sup> The health warning referred to a popular BBC2 programme called *Brass Tacks*. Aiming to maximize viewer interest, *Brass Tacks*’ first seasonal episode was titled “It Shouldn’t Happen To A Pig.”<sup>27</sup> Asking “whether it is time to choose between safe meat and cheap meat,”<sup>28</sup> *Brass Tacks* featured a Pharmaceutical Society spokesman, who claimed that “there is a substantial black market involving at least £ 500,000 worth of antibiotics, compared with the estimated £ 20 million worth used by farmers each year.”<sup>29</sup>

Three months later, the Government Chemist’s annual report seemed to confirm *Brass Tacks*’ allegations. According to the *Guardian*’s Anthony Tucker, “itinerant ‘con men’ ”<sup>30</sup> were endangering British consumers’ health. Often operating out of plain vans, dealers sold pharmaceuticals with forged brand labels. Seasoned in reporting on agricultural antibiotics, Tucker warned that using mislabelled drugs could result in animals’ death, residues in meat and antibiotic resistance. In 1978, antibiotics had been found in two-thirds of 350 confiscated samples of illegal merchandise. Amongst the identified drugs was the toxic chloramphenicol.<sup>31</sup>

During the 1980s, the extent of the British pharmaceutical black market only seemed to increase. In 1982, the *Observer* reported on attempts to curb illegal imports of Irish antibiotics.<sup>32</sup> In the *Daily Mirror*, the head of the Pharmaceutical Society’s law department, Gordon Appelbe, described the challenges of monitoring the black market with a tiny team consisting of 20 inspectors and 12 additional staff from MAFF.<sup>33</sup> In Applebe’s opinion, British authorities were “probably only scratching the surface of

26□ ‘Should this little piggy go to market?’ , *Radio Times*, 05.-11.05.1979, cover page.

27□ ‘Brass Tacks: It Shouldn’t Happen To A Pig’ , *British Film Institute National Archive*, [http://ftvdb.bfi.org.uk/sift/title/154746, accessed 12 Aug 2013].

28□Ibid.

29□Richard Norton Taylor, ‘Furious farmers ready for drugs phone-in’ , *Guardian*, 08.05.1979, p. 2.

30□Anthony Tucker, ‘Illicit drug sales to farmers pose threat to public health’ , *Guardian*, 09.08.1979, p. 2.

31□Cf. Ibid.

32□Cf. ‘Pressure to curb Irish farm drugs’ , *Observer*, 02.05.1982, p. 2.

33□Cf. Denise Winn, ‘Scandal of illegal farm drugs’ , *Daily Mirror*, 11.01.1983, p. 8.

the problem.”<sup>34</sup> In 1984, the *Guardian* estimated that the British pharmaceutical black market was worth ca. £ 3 million with the bulk of supplies coming from Ireland.<sup>35</sup> One year later, British veterinarians were embroiled in a major scandal following police raids on a cattle drugs ring, which included a veterinary surgery in Devizes. Suspected of extending from the West Country to Cheshire, the drugs ring was accused of flooding farms with “illegal supplies of antibiotics amounting to more than £ 1,000 a week.”

<sup>36</sup> According to the Pharmaceutical Society’s prosecutor, stopping the drugs ring was the “biggest operation in the society’s 140-year history.”<sup>37</sup> The operation had involved half of the Society’s now only 14 inspectors for over six months. By October, inspectors were investigating 54 farmers and four feed merchants.<sup>38</sup>

In addition to reports about illegal antibiotics, rising levels of antibiotic resistance were alarming physicians. Attempting to control old and new diseases resistant to antibiotics,<sup>39</sup> physicians renewed their assault on agricultural antibiotics. Publishing in the *BMJ* in May 1980, E. J. Threlfall from the PHLS traced the spread of multiresistant *S. typhimurium* types 204 and 193 from cattle to humans.<sup>40</sup> Causing 290 cases of salmonellosis and killing an elderly patient and a 3-year-old in 1979,<sup>41</sup> the new *S. typhimurium* strains were resistant to ampicillin, chloramphenicol, kanamycin, streptomycin, sulphonamides, tetracyclines, furazolidone and trimethoprim. Analysing *S. typhimurium*’s trimethoprim resistance, Threlfall concluded that agricultural advertisements of trimethoprim for calf enteritis had increased both drug prescriptions and resistance. Blaming veterinary over-prescription for the surge of resistance, Threlfall and his colleagues warned that “current regulations have failed.”<sup>42</sup>

More bluntly, the *BMJ*’s anonymous editorial asked: “Why Has Swann failed?”<sup>43</sup> According to the editorial, “over-enthusiastic representatives of pharmaceutical firms”, “black market operators”<sup>44</sup> and farmers were responsible for multi-resistant *S. typhimurium* and its spread from farming families into the food chain.

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<sup>34</sup>Ibid.

<sup>35</sup>Rosemary Collins, ‘Dairy farmers overdo quotas’, *Guardian*, 30.11.1984, p. 6.

<sup>36</sup>Cf. Andrew Veitch, ‘Cattle drug ring broken in raids’, *Guardian*, 26.07.1985, p. 28.

<sup>37</sup>‘Animal drugs ring exposed’, *Times*, 29.10.1985, p. 3.

<sup>38</sup>Ibid.; cf. also Andrew Veitch and James Erlichman, ‘Hunt for animal drugs widens’, *Guardian*, 27.07.1985, p. 2.

<sup>39</sup>Cf. ‘Microbiology: New diseases appearing’, *Times*, 05.12.1979, p. 16; ‘Syphilis may come to resist penicillin’, *Times*, 01.08.1981, p. 3; Pearce Wright, ‘25-nation warning on use of antibiotics’, *Times*, 06.08.1981, p. 2; many commentators interpreted events as ‘nature’s revenge’; cf. Robert Bud, *Penicillin: Triumph and Tragedy* (Oxford: Oxford University Press, 2009), pp. 192-201.

<sup>40</sup>E. J. Threlfall et al., ‘Plasmid-Encoded Trimethoprim Resistance in Multiresistant Epidemic Salmonella Typhimurium Phage Types 204 and 193 in Britain’, *British Medical Journal*, 280/6225 (1980).

<sup>41</sup>Ibid., p. 1210.

<sup>42</sup>Ibid., p. 1211.

<sup>43</sup>Anon., ‘Why Has Swann Failed?’, *ibid.*

<sup>44</sup>Ibid., p. 1195.

Ultimately, the Swann was failing because it had failed to regulate veterinarians and pharmaceutical advertisements.<sup>45</sup>

Covered by the *Times* and *Guardian*,<sup>46</sup> the *BMJ*'s assault caused protest. In 1980, H. Williams Smith accused Threlfall of unfair criticism. Because salmonellosis had never been at the heart of the Swann deliberations, it was misguided to accuse Swann of failing to prevent it. As the adoption of Swann by "many other countries" showed, Britain should "take some pleasure in having initiated it."<sup>47</sup> In 1981, Prof Adam Linton took up the discussion in the *Veterinary Record*.<sup>48</sup> Admitting that the "absence of simultaneous restriction[s] on the prophylactic and therapeutic use of antibiotics in both animals and man"<sup>49</sup> weakened Swann, Linton considered prescription bans "unacceptable."<sup>50</sup> Instead of limiting practitioners' prescription rights, regulators should focus on the spread of *salmonella* via animal transports.<sup>51</sup>

While veterinarians and physicians accused each other of antibiotic-overuse, problems with bacterial food poisoning continued to increase. In October 1981, Dr Bernard Rowe, director of the Central Public Health Laboratory's Enteric Pathogens Division, announced that "Britain '[was] threatened by [a] food super germ'." <sup>52</sup> Indeed, *Salmonella typhimurium* type 204 had reached "a disgraceful level of drug resistance."<sup>53</sup> According to the *Times*, the situation was so dire that meat processors were lobbying MAFF for tighter regulations.<sup>54</sup> In 1984, the *Times* reported that notified salmonellosis cases had risen from 10,000 in 1977 to 17,000 in 1983 with resulting deaths rising from 25 in 1972 to 65 in 1982.<sup>55</sup> According to the newspaper, pharmaceutical firms had started employing veterinary surgeons as consultants in order to provide farmers with convenient on-demand antibiotic access.<sup>56</sup>

Instead of addressing glaring food safety issues, the Thatcher administration became side-tracked by an ultimately futile campaign to stop an EEC ban of hormonal growth promotion between 1985 and 1986.<sup>57</sup> As a consequence, officials failed to prevent a significant shift of public opinion. In 1985, the *Guardian* claimed: "food

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45<sup>□</sup>Cf. Ibid.

46<sup>□</sup>Cf. 'Vets blamed for spread of bacteria', *Times*, 28.05.1980, p. 1; Anthony Tucker, 'Back to germ warfare', *Guardian*, 24.07.1980, p. 13.

47<sup>□</sup>H. Williams-Smith, 'Why Has Swann Failed?', *British Medical Journal*, 280/6230 (1980).

48<sup>□</sup>A. H. Linton, 'Has Swann Failed?', *Vet Rec*, 108/15 (Apr 11 1981), p. 328.

49<sup>□</sup>Ibid., p. 331.

50<sup>□</sup>Ibid., p. 330.

51<sup>□</sup>Cf. Ibid., p. 331.; cf. also John R. Walton, 'Advising on Antimicrobials', *The Veterinary Record*, 108/16 (1981), p. 366.

52<sup>□</sup>Hugh Clayton, 'Britain is 'threatened by food super germ'', *Times*, 28.10.1981, p. 3.

53<sup>□</sup>Ibid.

54<sup>□</sup>Cf. Ibid.

55<sup>□</sup>'Salmonella blamed on antibiotics', *Times*, 13.09.1984, p. 3.

56<sup>□</sup>Cf. Ibid.

57<sup>□</sup>Cf. 'Government Opposed to 'Scientifically Unjustified' Hormone Ban', *The Veterinary Record*, 117/24 (1985), p. 622.; the MAFF had made a critical inquiry into the use of stilboestrol as early as 1971; cf. TNA MAF 260/678 (Extract, Scotsman, James Burden - Cancer fears lead to UK hormone inquiry, September 14<sup>th</sup>, 1971).

additives and residues from pesticides, hormones and antibiotics now rival Aids as the number one health issue.”<sup>58</sup> According to James Erlichman, British consumers had the “gut feeling (...) that we throw too many drugs and chemicals into the food we eat.”

<sup>59</sup> In a similar vein, Jan Walsh’s 1986 bestseller *The Meat Machine* attacked intensive agriculture’s health balance sheet.<sup>60</sup> Claiming that “our grandmothers would not have touched such rubbish”<sup>61</sup> Walsh warned: “because the unnatural conditions of intensive rearing units spread disease like wildfire, farmers have been forced to give their livestock antibiotics to keep them healthy.”<sup>62</sup> While government scientists were quick to downplay hazards, British consumers were largely unprotected from illegal residues in meat.<sup>63</sup>

In the face of intensive agriculture’s crisis, newspapers increased reports about the ‘safe’ and ‘pure’ produce of the organic sector. In 1981, the *Observer* printed a lengthy article on a new organic cooperative called Real Growth Farmers. According to the newspaper, “one of the problems about organic farming is its cranky image – encapsulated, perhaps, in the vision of dirndl, beads, sandals and an atmosphere of folkloric guitar strumming.”<sup>64</sup> However, people like David Strickland, the cooperative’s suit-wearing and pipe-smoking head, were changing this image. Ahead of Christmas 1985, the *Guardian* printed a “Good Food Guide.”<sup>65</sup> In it, the newspaper advertised produce from Anne Petch’s Heal Farm. A Devon pig breeder and quality pork butcher, Petch’s pigs were “not given antibiotics, steroids, hormones or arsenic.”<sup>66</sup> One year later, the *Guardian* praised the growing number of small organic outlets. Until recently, Wholefood Butchers in London’s Paddington Street had been “a lonely outpost for the health-conscious or benevolent carnivore, sustaining a network of small farmers whose methods seemed laughably anachronistic.”<sup>67</sup> Now, there were at least four additional shops serving health conscious Londoners and demand was fast outstripping supply – vendors’ common denominator was the guarantee of ‘antibiotic-free’ meat.<sup>68</sup>

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<sup>58</sup> James Erlichman, ‘UK makes mincemeat of ban on hormones’, *Guardian*, 15.11.1985, p. 21; hormones were already banned from growth promotion in Italy, Germany and Belgium; countries using them were Britain, France and Ireland.

<sup>59</sup> James Erlichman, ‘It’s all very well to keep hormones out of our food – but what about pesticides?’, *Guardian*, 21.12.1985, p. 17.

<sup>60</sup> Cf. ‘The Friday Review’, *Guardian*, 07.11.1986, p. 19.

<sup>61</sup> Jan Walsh, *The Meat Machine* (London: Columbus Books, 1986), p. 13.

<sup>62</sup> *Ibid.*, p. 10.

<sup>63</sup> Cf. *Ibid.*, p. 15.

<sup>64</sup> Michael Dineen, ‘The answer lies in preserving the soil’, *Observer*, 01.11.1981, p. 21; cf. Francis Blake, ‘Answers that lie in the soil’, *Guardian*, 27.06.1983, p. 14.

<sup>65</sup> ‘Bringing home the bacon: Good Food Guide’, *Guardian*, 15.11.1985, p. 19.

<sup>66</sup> *Ibid.*

<sup>67</sup> Sheila Dillon, ‘Real meat, real money’, *Guardian*, 07.11.1986, p. 19.

<sup>68</sup> Cf. *Ibid.*

By the mid-1980s, the *Times* joined the chorus of organic praise.<sup>69</sup> With scenarios of global overpopulation and food gaps losing credibility,<sup>70</sup> the *Times* agricultural correspondent, John Young, published an important article in 1985. According to Young, a misleading alliance of “doom-mongers”<sup>71</sup> had vastly exaggerated overpopulation. Citing a 1985 UN World Food Council report, Young claimed that population growth had not outpaced cereal production. With global carryover of cereal stocks projected to reach 358 million tons in 1986, Young argued that global hunger was “political, not economic.”<sup>72</sup> Following this conceptual shift, the *Times* intensified criticism of conventional agriculture and praise for lower yielding and sustainable organic agriculture.

In 1986, the newspaper even printed a positive review of Peter Cox’s *Why You Don’t Need Meat*.<sup>73</sup> According to the Vegetarian Society’s former chief executive, conventional farmers’ routine use of antibiotics made consuming meat particularly dangerous. In a chapter titled “There’s Junk in Your Joint”,<sup>74</sup> Cox interviewed a veterinarian, who warned: “there’s no control, and no practical monitoring whatsoever.”<sup>75</sup> According to Cox’s anonymous source, farmers were illegally marketing so-called casualty animals. “Dose[d] (...) up with a strong antibiotic to keep it on its feet for the next few hours”<sup>76</sup>, an often sick casualty animal was sent to a slaughterhouse where “an inspector may only visit (...) once a week.”<sup>77</sup> In the veterinarian’s opinion, antibiotics and intensive farming had changed his entire profession:

It’s a vicious circle, but we’ve gone too far now to turn back. You see, once vets were people who looked after the well-being of animals, both farm and domestic. But now, we just suppress the disease until it’s time for the animal to be killed.<sup>78</sup>

Reporting on antibiotic resistance, the *Times* printed a three-part series on “The Global Overdose”<sup>79</sup> in 1987. Titled “The bitter harvest,”<sup>80</sup> the third part of

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<sup>69</sup>Libby Purves, ‘The case for an alternative cure’, *Times*, 16.05.1986, p. 9; John Young, ‘Bacteria is claimed to aid growth in animals’, *Times*, 14.06.1986, p. 15.

<sup>70</sup>Cf. John Ruxin, ‘The United Nations Protein Advisory Group’, in David F. Smith and Jim Philips (eds.), *Food, Science, Policy and Regulation in the Twentieth Century. International and Comparative Perspectives* (London and New York: Routledge, 2000).

<sup>71</sup>John Young, ‘Malthus no: malnutrition yes’, *Times*, 20.11.1985, p. 14.

<sup>72</sup>*Ibid.*

<sup>73</sup>Denise Winn, ‘One man’s meat may be everyone’s poison’, *Times*, 28.07.1986, p. 11.

<sup>74</sup>Peter Cox, *Why You Don’t Need Meat* (Weelingsborough and New York: Thorsons Publishing Group, 1986), p. 105.

<sup>75</sup>*Ibid.*, p. 106.

<sup>76</sup>*Ibid.*, p. 109.

<sup>77</sup>*Ibid.*, p. 111.

<sup>78</sup>*Ibid.*, p. 110.; in 1994, Cox published a sequel with a foreword by Linda McCartney, however, antibiotics no longer featured as prominently; cf. Peter Cox, *The New. Why You Don’t Need Meat* (London: Bloomsbury, 1994).

<sup>79</sup>‘From wonder drug to bitter pill’, *Times*, 02.03.1987, p. 10.

<sup>80</sup>George Hill et al, ‘The bitter harvest’, *Times*, 04.03.1987, p. 12.



the *Times*-series showed a piggy bank being filled with pills. According to the *Times*, “modern factory-farming methods” still depended “heavily on antibiotics.”<sup>81</sup> Even though “plasmid fingerprinting” linked resistant *Salmonella* to agricultural antibiotic-use, doctors and veterinarians were shunning responsibility rather than tackling the problem:

Many voices in the medical world insist that use of drugs on farms still represents a threat (...). On the veterinary side, the charge is that many GPs are too ready to prescribe antibiotics as a kind of all-purpose magic potion ...<sup>82</sup>

With both professions likely to “argue for ever”, resistant bacteria were thriving and “there [was] little that either doctors or vets can do to eliminate [existing resistance].”<sup>83</sup>

As if on cue, April 1987 saw further unappetizing revelations about antibiotics in British milk. According to the *Guardian*, British farmers were adding the penicillin-neutralising enzyme penicillinase to milk in order to obscure penicillin residues. Hard-hit by recent EEC quota cuts, an interviewed West Country farmer justified this illegal procedure:

When I accidentally milk a cow which has just received antibiotics I mix up the [brown penicillinase] powder with water and pour it into my tank. (...). I can't afford to throw away a 250 gallon tank of milk at 80p a gallon. Enough penicillinase to neutralise the problem only costs me £8.<sup>84</sup>

Although the NFU and MMB announced that penicillinase was harmless, Dr Joe Collier, a clinical pharmacologist at St George's Hospital in London, claimed that neutralised residues could still cause allergic reactions. Responding to the findings, the chairman of the Agriculture Select Committee called for a crackdown on farmers and dairies using penicillinase.<sup>85</sup>

However, 1988 saw British fears about food contamination peak. In early 1988, health inspectors found antibiotic residues in 16 out of 88 carcasses in a Bradford abattoir.<sup>86</sup> Alarmed, the supermarket chains Marks & Spencer and Waitrose announced that they would stop buying meat produced with antibiotic feeds.<sup>87</sup> One month later, the *Daily Mirror* asked “what has gone wrong with our food laws.”<sup>88</sup> Referring to several

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<sup>81</sup> *Ibid.*

<sup>82</sup> *Ibid.*; cf. also Bud, *Penicillin: Triumph and Tragedy*, p. 190.

<sup>83</sup> George Hill et al, ‘The bitter harvest’, *Times*, 04.03.1987, p. 12; cf. also: Pearce Wright, ‘Overuse of antibiotics by doctors’, *Times*, 22.04.1987, p. 3.

<sup>84</sup> James Erlichman, ‘Superbug risk from chemical use in milk’, *Guardian*, 03.04.1987, p. 1 and back page.

<sup>85</sup> Cf. James Erlichman, ‘Cover-up that may help the superbugs’, *Guardian*, 07.04.1987, p. 29.

<sup>86</sup> Cf. James Erlichman, ‘Drug traces found in abattoir carcasses’, *Guardian*, 18.01.1988, p. 4.

<sup>87</sup> Cf. James Erlichman, ‘Public kept in dark on additives’, *Guardian*, 28.01.1988, p. 2; by the 1990s, however, both supermarkets were offering conventionally produced meat again; cf. Paul Brown, ‘Supermarkets move to ban growth-drug meat from shelves’, *Guardian*, 24.04.1998, p. 4.

<sup>88</sup> Jan Walsh, ‘Recipe for Danger’, *Daily Mirror*, 04.02.1988, p. 6.

cases of *Salmonella*-contaminated sausages, the newspaper reported that agricultural antibiotics were introducing resistant pathogens to the food chain. At the same time, food preparation premises were not subject to adequate bacteriological controls. Showing the picture of a young boy eating a hamburger, the newspaper blamed interdepartmental rivalry for inadequate official food controls and called for a total review of food laws.<sup>89</sup>

By December, the stage was set for a perfect storm. On December 3<sup>rd</sup>, a salmonella outbreak prompted Junior Health Minister, Edwina Currie, to warn British TV-viewers to avoid “all raw egg products like mayonnaise, home-made ice cream, and even lightly cooked eggs.”<sup>90</sup> Reacting to Currie’s announcement, Prof Richard Lacey from the VPC confirmed 450 recent cases of *Salmonella enteritidis*-induced food poisoning.<sup>91</sup> However, following another televised warning by Currie, Lacey corrected the number to ca. 3,000 infections with one resulting fatality every week.<sup>92</sup> With egg sales dropping nearly 15% ahead of Christmas, the NFU announced that it was going to sue Currie.<sup>93</sup> Dubbed “Eggwina”<sup>94</sup> by the British media, Currie was forced to tender her resignation on December 16<sup>th</sup> 1988.<sup>95</sup> While officials subsequently downplayed the scandal, documents released in 2001 reveal that a parallel investigation confirmed “a salmonella epidemic of considerable proportions.”<sup>96</sup>

While the Currie scandal eventually ebbed, food safety concerns carried over into 1989. In parliament, Conservative MP Sir Richard Body accused MAFF of “turning a blind eye”<sup>97</sup> on pesticides, antibiotics and hormones in agriculture. In spite of a promised new Food Safety Act,<sup>98</sup> reports on “food danger[s] from ‘barbaric’ factory farms”<sup>99</sup> continued to appear. Titled “Not Even Fit For Our Pigs”<sup>100</sup> and “Cages of cruelty,”<sup>101</sup> the *Daily Mirror* reported on the lives of intensively reared animals:

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<sup>89</sup> Cf. Ibid.

<sup>90</sup> James Erlichman, ‘Hen cull could halt salmonella’, *Guardian*, 05.12.1988, p. 24.

<sup>91</sup> Ibid.

<sup>92</sup> James Erlichman, ‘Salmonella eggs ‘kill one a week’’, *Guardian*, 19.12.1988, p. 1.

<sup>93</sup> Cf. P.A. Barton, ‘Scrambled statistics and poached platitudes’, *Guardian*, 06.12.1988, p. 22; Craig Brown, ‘Government in an eggshell’, *Times*, 07.12.1988, p. 12.

<sup>94</sup> Ibid.

<sup>95</sup> Cf. David F. Smith et al., *Food Poisoning, Policy and Politics. Corned Beef and Typhoid in Britain in the 1960s* (Woodbridge: The Boydell Press, 2005), pp. 303-04.; James Erlichman, ‘Salmonella eggs ‘kill one a week’’, *Guardian*, 19.12.1988, p. 1.

<sup>96</sup> David Millward, ‘Currie ‘was right’ on salmonella’, *The Telegraph*, 26.12.2001; [<http://www.telegraph.co.uk/news/uknews/1366276/Currie-was-right-on-salmonella.html>, accessed 13 Aug 2013]

<sup>97</sup> Philip Webster and Sheila Gunn, ‘Biggest food safety reform for 50 years’, *Times*, 25.01.1989, p. 1.

<sup>98</sup> Cf. Committee on the Microbiological Safety of Food (Richmond Committee), ‘The Microbiological Safety of Food. Part II.’, (London, 1990), p. 6.

<sup>99</sup> ‘Pig Sick’, *Daily Mirror*, 13.02.1989, p. 1.

<sup>100</sup> Frank Thorne and Anna Treacher, ‘Not Even Fit For Our Pigs’, *Daily Mirror*, 13.02.1989, p. 5.

<sup>101</sup> ‘Cages of cruelty’, *Daily Mirror*, 13.02.1989, p. 2.

They are born and reared in the dark and the dirt. They are pumped full of hormones and antibiotics. But even that isn't the worst of it. They are the next potential food poisoning timebomb [sic]. It could explode soon. (...). And no Tory Government has dared to take on its masters, the agriculture lobby.<sup>102</sup>

Shot undercover by activists near Oxford, one film apparently showed piglets "crawling over piles of innards and still born animals left to rot in a baking hot shed."<sup>103</sup> Later that year, the *Observer* launched a national "Safe Food Campaign"<sup>104</sup> with the help of Parents for Safe Food (PSF). Ahead of Christmas 1989, the *Times* imitated the *Guardian* by supplying a list of organic meat vendors.<sup>105</sup>

However, British agriculture's biggest scandal was yet to come: during the second half of the 1980s, a mysterious new disease called *Bovine Spongiform Encephalopathy* (BSE) caused growing concern. Officially identified in 1986, BSE is believed to be caused by a misfolded protein – a so-called prion. Having entered an organism, the misfolded prion settles in the host's brain and causes further proteins to misfold. After a while, misfolded prions accumulate in the form of thick plaque fibres, which produce microscopic holes in the host's brain tissue. Exponential plaque fibre growth subsequently leads to the host's fatal physical and mental deterioration.<sup>106</sup> Significantly, BSE is transmissible to humans in the form of the equally fatal *variant Creutzfeldt-Jakob Disease* (vCJD). While there are competing theories on the origins of BSE, the disease was probably spread by feeding meat and bone meal to normally herbivore cattle.<sup>107</sup> In other words, it was inherently linked to the factory-like conditions of intensive husbandry.

Acknowledging the new epizootic in 1987, the Thatcher administration once again reacted slowly: in 1988, BSE was made a notifiable disease. In July, the feeding of ruminant protein to ruminants was temporarily banned. In August, compulsory slaughter arrangements for affected cattle came into force. Specified Bovine Offal (SBO) controls were only introduced in 1990.<sup>108</sup> However, according to a 2001 study in *Science*, between 460,000 and 482,000 out of a total of 900,000 to 1,130,000 infected animals had entered the human food chain by this time.<sup>109</sup>

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<sup>102</sup> Ibid.

<sup>103</sup> Frank Thorne and Anna Treacher, 'Not Even Fit For Our Pigs', *Daily Mirror*, 13.02.1989, p. 5.

<sup>104</sup> Polly Ghazi, 'Celebrities lead battle against sprays', *Observer*, 22.10.1989, p. 3.

<sup>105</sup> Cf. Ann Kent, 'Talking pure turkey', *Times*, 27.11.1989, p. 19.

<sup>106</sup> S. Poser, I. Zerr, and K. Felgenhauer, 'Die Neue Variante Der Creutzfeldt-Jakob-Krankheit', *Deutsche Medizinische Wochenschrift*, 127 (2002), pp. 331-34.

<sup>107</sup> Cf. Mark Harrison, *Contagion. How Commerce Has Spread Disease* (New Haven and London: Yale University Press, 2012), p. 249.

<sup>108</sup> Cf. Expert Group on Animal Feedingstuffs, 'The Report of the Expert Group on Animal Feedingstuffs to the Minister of Agriculture, Fisheries and Food, the Secretary of State for Health and the Secretaries of State for Wales, Scotland and Northern Ireland (Lamming Report)', (London, 1992), pp. 5-15.

<sup>109</sup> Alain-Jacques Valleron and Et Al., 'Estimation of Epidemic Size and Incubation Time Based on Age Characteristics of Vcjd in the United Kingdom', *Science*, 294 (2001), p. 1726.

Already part of the *Observer*'s 1989 Safe Food Campaign, the early 1990s saw BSE fears quickly merge with antibiotic-centred criticism of intensive agriculture. Writing for the *Guardian* in 1990, Lucy Ellmann complained that intensive farming had "given a new meaning to the term, fast food: the cattle themselves grow unnaturally fast on their diet of pig's blood, sheep offal, decaying chickens, chicken shit, hormones and antibiotics."<sup>110</sup> According to Ellmann, the government was less concerned about public health than about preventing "undue public concern":

Writing this piece has given me such a headache, I think I'll take an aspirin. (...). Oh, what the hell, might as well finish myself off with a chicken sandwich.<sup>111</sup>

In the *Times*, Ronald Butt claimed that BSE fostered distrust in official advice. Referring to the precedent of agricultural antibiotics, Butt claimed that official expertise assumed that "when no evidence exists to prove risk, it can be safely assumed that no risk exists."<sup>112</sup> However, "the lack of evidence of a risk does not necessarily rule risk out."<sup>113</sup>

Empowered by consumer fears, opponents of intensive farming continued their assault. In 1992, Compassion in World Farming organised a well-publicised conference on "factory farming."<sup>114</sup> At the conference, six veterinarians including Dr Henry Carter, former president of the RCVS and Derek Evans, former assistant chief veterinary officer at the MAFF, criticised veterinarians' acquiescence to intensive farming and the BVA's "failure to demand reform at a political and legal level."<sup>115</sup> Reporting on the conference, the *Times* recommended that "the best way to squeeze factory farming is to refuse to buy its products."<sup>116</sup> Controversially, campaigners and lobbyists increasingly targeted school children.<sup>117</sup> While the Meat and Livestock Commission distributed a 15-minute film on pork production without showing a single living pig, the School Campaign for Reaction Against Meat (Scream) supplied schools with free material showing suffering animals on factory farms.<sup>118</sup> Conditions in slaughterhouses were also criticised. In 1992, the *Times* reported that health inspectors had found nearly 150 hygiene faults in two Welsh abattoirs in 1991. Violations included: "flies in the cutting room, birds flying about in the slaughter hall, dirt on hanging meat, walls smeared in dried blood and muck, and slaughtermen with unwashed hands."<sup>119</sup>

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<sup>110</sup>Lucy Ellmann, 'Off we all traipse like those mad cows to the slaughter', *Guardian*, 05.02.1990, p. 20.

<sup>111</sup>Ibid.

<sup>112</sup>Ronald Butt, 'Mad cows and competition', *Times*, 11.06.1990, p. 14.

<sup>113</sup>Ibid.

<sup>114</sup>Alison Johnson, 'Kind food', *Times*, 18.01.1992, p. 44.

<sup>115</sup>Ibid.

<sup>116</sup>Ibid.; cf. also: 'Do you know where your next meal came from?', *Times*, 03.10.1992, p. 10.

<sup>117</sup>Liz Gill, 'Meat, medicine - and the battle for young minds', *Times*, 16.02.1993, p. 14.

<sup>118</sup>Cf. Ibid.

<sup>119</sup>'A British side of beef', *Times*, 03.10.1992, p. 12.

Meanwhile, the comeback of notorious scourges like tuberculosis caused a surge of articles addressing antibiotic resistance.<sup>120</sup> According to the *Guardian*, strains of resistant “TB [had] acquired the sort of mythic quality Aids had in the mid-eighties.”<sup>121</sup> Adding to fears of an infectious endgame, newspapers reported on new strains of cholera, hepatitis, ‘flesh eating’ *Streptococcus* Type A, Indian pneumonic plague and salmonella.<sup>122</sup> During the mid-1990s, the planned introduction of the genetically-modified ‘Flavr Savr’ tomato lead to further controversy about the dangers of ‘artificially’ induced antibiotic-resistance.<sup>123</sup> Although some reporters soon tired of the “media hype” surrounding the “same old story with the ‘killer bug,’ ”<sup>124</sup> several Hollywood movies and bestsellers continued to address public fears.<sup>125</sup>

Once again, the main sector to profit from consumer insecurity was organic farming. During the 1990s, the *Times* regularly featured the organic farming endeavours of TV reporter Paul Heiney, who was enraged by the “dubious practice of feeding live animals with dead ones” and “nitrates in drinking water, salmonella in eggs, (...) hormones in milk and antibiotics in bacon.”<sup>126</sup> Writing for the *Observer*, Derek Cooper praised poultry breeders, who were “turning their backs on systems which place efficiency and profit before compassion.”<sup>127</sup> According to the *Times*, 11% of British consumers were regularly buying organic foods with retail sales rising from £92.5 million in 1992 to £105.1 million in 1993.<sup>128</sup> In the opinion of “*Times Cook*” Frances Bissell, “organic, additive-free whole foods are perfect for both healthy and delicious meals.”<sup>129</sup>

120<sup>□</sup>Cf. Chris Mihill, ‘Over-Use Weakens Drugs’, *Guardian*, 26.10.1994, p. 6; ‘Cash Cuts Boost Superbugs’, *Guardian*, 04.07.1985, p. 13; James Le Fanu, ‘Have doctors misused antibiotics?’, *Times*, 18.05.1995, p. 18; Luisa Dillner, ‘Doctor At Large – Germ Warfare’, *Guardian*, 23.05.1995, p. 10.

121<sup>□</sup>Henry Porter, ‘TB in NY. How An Old Name Is Posing A New Threat’, *Guardian*, 27.04.1993, p. 5; Aileen Ballantyne, ‘An old scourge returns’, *Times*, 22.04.1993, p. 17; cf. also Peter Kingston, ‘No Country is immune’, *Guardian*, 04.05.1993, p. 10.

122<sup>□</sup>Cf. Tim Radford, ‘Old Enemies – Bacteria’, *Guardian*, 25.05.1994, p. 2; Jeremy Laurance, ‘Strain of salmonella that resists drugs is linked to take-aways’, *Guardian*, 19.10.1994, p. 8; Christopher Thomas, ‘Indians battle to prevent plague sweeping Bombay’, *Times*, 27.09.1994, p. 15; cf. also: Tim Radford, ‘Ancient Enemies that Modern Science Cannot Defeat’, *Guardian*, 01.10.1994, p. 12; Nigel Hawkes, ‘Bacteria that eat the flesh’, *Times*, 24.05.1994, p. 15.

123<sup>□</sup>Cf. Bernard Dixon, ‘We Say Tomato, They Say Flavr Savr’, *Guardian*, 21.05.1994, p. 24; James Erlichman, ‘Watchdog Warns Of Disease From ‘Alien’ Tomato’, *Guardian*, 21.07.1994, p. 5; Polly Ghazi, ‘Fried gene tomatoes’, *Observer*, 25.09.1994, p. D68; while this dissertation does not analyse the British GMO controversy of the 1990s in detail, Javier Lezaun has published on the topic; cf. Javier Lezaun, ‘Genetically Modified Foods and Consumer Mobilization in the UK’, *Technikfolgenabschätzung – Theorie und Praxis*, 13/3 (2004).

124<sup>□</sup>Thomas Stuttaford, ‘It’s the same old story with the ‘killer bug’’, *Times*, 31.05.1994, p. 15.

125<sup>□</sup>Cf. Bud, *Penicillin: Triumph and Tragedy*, pp. 199-200.

126<sup>□</sup>Paul Heiney, ‘A son of the soil in the making’, *Times*, 17.03.1990, p. 17; cf. also: Paul Heiney, ‘Heroic Alice’s finest hour’, *Times*, 06.07.1991, p. 16; Michael Hornsby, ‘Organic farmer leads the way’, *Times*, 11.08.1992, p. 5.

127<sup>□</sup>Derek Cooper, ‘Man is the real beast of the field’, *Observer*, 10.07.1994, p. D2.

128<sup>□</sup>Nick Nuttall, ‘Organic mission to convert’, *Times*, 28.10.1994, p. 40.

129<sup>□</sup>Cf. Frances Bissell, ‘The Times Cook’, *Times*, 03.06.1995, p. 51; cf. also Frances Bissell, ‘The Times Cook’, *Times*, 15.10.1994, p. 63[S2].

With trust in intensive husbandry wearing thin, agricultural antibiotics once again functioned as a common denominator for critics from various camps. While organic farmers used antibiotic fears to promote their produce, physicians blamed agricultural antibiotics for fatal infections, activists attacked antibiotics for facilitating animal abuse and consumers feared antibiotics in their food. Similar to the pre-Swann situation, agricultural antibiotics' symbolic embodiment of intensive practices made them extremely vulnerable to any kind of agricultural scandal.

Such a scandal occurred on March 20<sup>th</sup> 1996, when the British government confirmed a possible link between BSE and human vCJD. In the following weeks and months, officials and farmers faced unprecedented outrage and embargoes that threatened to destroy the entire beef sector.<sup>130</sup> Writing for the *Guardian*, Patrick Holden, president of the Soil Association, described BSE as “testimony to the breathtaking arrogance of 20<sup>th</sup> century western agricultural science, which has assumed that farming could dominate nature.”<sup>131</sup> Significantly, Holden's subsequent criticism centred on agricultural antibiotics: “When, inevitably, the animals get sick, farmers use antibiotics to prevent infectious diseases taking hold. This is like trying to put a cork in a bottle that is actively fermenting – it cannot possibly work for very long.”<sup>132</sup> Whereas a doctrine of technical fixes had dominated previous policy, the BSE crisis “surely challenged establishment thinking right to the core.”<sup>133</sup>

In the *Observer*, Judy Jones and Anthony Bevins also interpreted BSE as a symptom of more fundamental failings. Asking “... and what other food is safe?,”<sup>134</sup> the authors interviewed the head of the Vegetarian Society, Steve Connor. According to Connor, “beef-loving Britons who are turning (...) to pork, chicken, lamb and turkey [were] simply lulling themselves into a false sense of security.”<sup>135</sup> Enumerating the numerous food scandals since the late 1980s, the authors noted that English and Welsh food poisoning cases had increased from 19,242 in 1985 to 83,346 in 1995.<sup>136</sup> In the authors' opinion, food safety problems were the logical consequence of a farming system that “force fed antibiotics”<sup>137</sup> to animals. If consumers wanted safe food, they had to buy organic.

Going organic was also espoused by the *Daily Mirror*. Picturing a Chillingham cow “from the wild, a cow as nature intended,” the tabloid proclaimed that Britons

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<sup>130</sup> Cf. Javier Lezaun and Martijn Groenleer, 'Food Control Emergencies and the Territorialization of the European Union', *European Integration*, 28/5 (2006), pp. 439-40.

<sup>131</sup> Patrick Holden, 'Sacrificed on the Hi-Tech Altar', *Guardian*, 27.03.1996, p. 4.

<sup>132</sup> Ibid.

<sup>133</sup> Ibid.

<sup>134</sup> Judy Jones and Anthony Bevins, 'And what other food is safe?', *Observer*, 31.03.1996, p. 17.

<sup>135</sup> Ibid.

<sup>136</sup> Ibid.

<sup>137</sup> Ibid.

had “mad farming disease.”<sup>138</sup> Once again, BSE was described as the tip of an agro-industrial iceberg kept afloat by the extensive use of antibiotics. According to the *Mirror*, 17 million antibiotic shots against mastitis “are pumped in cows teats every year”.<sup>139</sup> At the same time, cases of resistant food poisoning had “trebled since 1993 to more than 3,500 last year.”<sup>140</sup> Acknowledging the higher price of organic food, the *Mirror* asked readers whether they would rather support an intensive system “polluting our food” and subsequently pay “the price in sickness and unnecessary health bills.”<sup>141</sup>

In the *Times*, Clive Aslet, editor of *Country Life* magazine, lead a public assault on MAFF. Calling official eradication and culling programmes a “shambles”, Aslet argued that consumers were justified in turning to the “readily identifiable alternative to intensive agriculture – the organic movement.”<sup>142</sup> Even though he found the movement’s focus on homeopathy “a bit loony”,<sup>143</sup> Aslet argued that organic farmers had long since managed to reduce the use of antibiotics to a minimum. From the ruins of BSE, “Britain must build a system of agriculture that is acknowledged as the safest and most humane in the world.”<sup>144</sup>

As has been shown, the deep BSE-crisis lead to the nearly unanimous opinion that reforms of British agriculture would have to go far beyond banning meat and bone meal feeds. In this situation, agricultural antibiotics presented an easily identifiable target for activists and rueful producers alike. For the British media, the emergence of new resistant pathogens like *E. coli* 0157 only underlined the urgency of sweeping antibiotic reforms.<sup>145</sup>

Winning a landslide victory in May 1997, Tony Blair’s New Labour government wanted to avoid prolonging the agricultural conflicts, which had damaged previous administrations.<sup>146</sup> As a consequence, New Labour did not oppose European antibiotic reform, which was triggered by Sweden’s refusal to comply with EU legislation. Having banned growth-promoting antibiotics in 1986, Sweden initially

138□ Andrew Penman, ‘Cow that Proves We’ve Got Mad Farming Disease’, *Daily Mirror*, 21.08.1996, p. 6; in another article, the *Daily Mirror* attacked the government for failing to act on BSE and reform farming; cf. ‘High steaks’, *Daily Mirror*, 25.10.1996, p. 6; ‘No cause for concern’, *Ibid.*

139□ Andrew Penman, ‘Cow that Proves We’ve Got Mad Farming Disease’, *Daily Mirror*, 21.08.1996, p. 6;

140□ *Ibid.*

141□ *Ibid.*

142□ Clive Aslet, ‘How to rescue British beef’, *Times*, 03.05.1996, p. 16.

143□ *Ibid.*

144□ *Ibid.*

145□ Cf. Nigel Hawkes, ‘Scientists fear ‘ominous’ spread of mutant bacteria’, *Times*, 29.11.1996, p. 4; cf. also the influential reform campaigning by Stuart Levy: Jeremy Laurance, ‘Increased resistance to antibiotics raises risk of health crisis’, *Times*, 19.07.1996, p. 9; Helen Nowicka, ‘World Warning Over Antibiotics’, *Guardian*, 14.10.1996, p. 3; ‘Beware: mother’s little helper is defecting...’, *Observer*, 08.12.1996, p. 21.

146□ In its 1997 election manifesto “New Labour because Britain deserves better”, Labour had referred to the BSE scandal three times and promised to establish an independent food standards agency; cf.

‘New Labour – Because Britain deserves better’, *Friedrich Ebert Stiftung*, [http://www.fes.de/fulltext/ialhi/90057/90057toc.htm, accessed 16.09.2013].

negotiated a three-year exemption from mandatory antibiotic compliance following its EU accession in 1995. With the three-year exemption about to expire, the Swedish government announced that it would not abolish its growth promoter ban.<sup>147</sup> Inspired by this refusal, German, Danish and Finish ministers supported their Swedish colleague by expressing grave concern over the use of antibiotics in animal feeds during a meeting of the EU Council of Agriculture Ministers in November 1997.<sup>148</sup>

In Britain, pressure for government action increased considerably following the publication of several influential official reports in 1998.<sup>149</sup> Sensitive to consumer opinion, Tesco, Sainsbury's and Asda announced that they were prohibiting suppliers from using antibiotic growth promotion in April 1998.<sup>150</sup> Writing to Dr Miriam Stoppard's *Daily Mirror* advice column – “the advice column you can trust” –, a self-described “farmer's wife”<sup>151</sup> asked: So what about the antibiotics used in animal feed? (...) won't these feeds cause resistant bugs, too?”<sup>152</sup> Miriam answered: “I think you're right. For years farmers and manufacturers thought animal foodstuffs were safe (...): we thought the same about BSE didn't we? How wrong we were.”<sup>153</sup>

In November 1998, the EU decided to ban four of the remaining eight antimicrobial growth promoters.<sup>154</sup> While the 1998 bans were officially justified with reference to antibiotic resistance, they also bore testament to European consumers' increasing power. One reason for this was consumers' ability to vote against controversial production methods with their wallets.<sup>155</sup> Profiting from unified labelling, Britain's organic food market had grown from £40 million in 1987 to £267 million

147□The Killers within Zitieren!; cf. also Bud, *Penicillin: Triumph and Tragedy*, p. 205.

148□Cf. Consumers in Europe Group, *Antibiotic Resistance. The Risk to Human Health and Safety from the Use of Antibiotics in Animal Production (Ceg 98/2)* (1998), p. 11.

149□Cf. Ian Murray, ‘Animal growth drugs ‘help to increase salmonella’’, *Times* 29.04.1998, p. 8; Michael Hornsby, ‘Livestock fed most antibiotics’’, *Times*, 07.12.1998, p. 4; Paul Brown, ‘Intensive Farming Methods ‘risk to health’’, *Guardian*, 12.03.1998, p. 6. Ruth Evans, NCC director, wrote to the *Guardian* stressing the importance of a ban of antibiotic growth promotion in April 1998; cf. Ruth Evans, ‘Antidotes to antibiotics’’, *Guardian*, 25.04.1998, p. 20 Colin Tudge, ‘Farming’s future in the balance’’, *Times*, 28.03.1998, p. 17; cf. also the *Times* report on the apparent proof of links between Danish hospital infections and agricultural antibiotic use, Nigel Hawkes, ‘Resistant bug linked to animal feed drug’’, *Times*, 19.03.1998, p. 11; ‘The legacy of antibiotics’’, *Guardian*, 24.04.1998, p. 21; cf. also Paul Brown and Sarah Boseley, ‘Super bug threat to health’’, *Guardian*, 23.04.1998, p. 1; Ian Murray, ‘Antibiotics are bad for health, scientists warn’’, *Times*, 24.04.1998, p. 8; Tim O’Brien, ‘Farming – Poison pens’’, *Guardian*, 29.04.1998, p. 4.

150□Paul Brown, ‘Supermarkets move to ban growth-drug meat from shelves’’, *Guardian*, 24.04.1998, p. 4; cf. also increasing reports on organic alternatives; ‘Alternative to antibiotics’’, *Guardian*, 08.05.1998, p. 12; Mark Irving, ‘Homes & Gardens – Natural Health Service’’, *Guardian*, 01.08.1998, p. 46; Robin Young, ‘Goodbye Windsor soup’’, *Times*, 31.10.1998, p. 6; Jim Ainsworth, ‘Four of the best ... places for simple foods’’, *Observer*, 22.11.1998, p. C61; ‘Lucy Pinney’’, 28.11.1998, p. 23; in December 1998 the *Guardian* printed a debate in letters between Colin Maclean from the Meat and Livestock Commission and John Humphrys, a broadcaster and organic farmer on the topic “Is our food really safe to eat?”; cf. ‘Is our food really safe to eat?’’, *Guardian*, 19.12.1998, p. 2.

151□Anon, ‘Dear Miriam’’, *Daily Mirror*, 18.12.1998, p. 33.

152□Miriam Stoppard, ‘Dear Miriam’’, 18.12.1998, p. 33.

153□*ibid.*

154□Cf. Michael Hornsby, ‘Pig feed rules may ban use of animal remains’’, *Times*, 13.11.1998, p. 7.

155□There are strong parallels to the stalled introduction of GMOs to EU agriculture; cf. John Vidal, ‘Eco Soundings’’, *Guardian*, 03.02.1999, p. 4; Sarah Ryle and Robin McKie, ‘Miracle foods’’, *Observer*, 14.02.1999, p. 18; significantly, the old Swann supporter Bernard Dixon now worked for the GMO-promoting European Biotechnology Forum.



in 1997 and was projected to grow to over £ 1 billion by 2000.<sup>156</sup> Still only accounting for ca. 1% of total British food and drink expenditure in 2000,<sup>157</sup> organic products' cultural influence was enormous: in 1999, all analysed British newspapers featured extensive reports on the supposed advantages of organic produce.<sup>158</sup> In the *Times*, Libby Purves, radio presenter and wife of Paul Heiney, reflected smugly on the organic boom: "In about 1992, we had John Gummer, then Agriculture Minister, in this very kitchen, laughing charmingly and pooh-poohing our organic attitudes."<sup>159</sup> Seven years later, "there [were], (...) signs of a genuine popular rebellion against the culture of ghastly farming and ghastly food."<sup>160</sup> In June 1999, a 54-page issue of the *Observer Magazine* was devoted to "Planet organic."<sup>161</sup> According to the magazine, "' organic ' meant purity"<sup>162</sup> to consumers. With Waitrose and Sainsbury's now stocking over 400 organic product lines, the organic boom had transformed the Soil Association from an "insignificant charity with a staff of five" to an influential organisation with a staff of 80 within "a few short years."<sup>163</sup>

Meanwhile, antibiotic reformers were now targeting the remaining four growth promoters. Similar to earlier years, their endeavours were aided by a series of scandals and official reports.<sup>164</sup> In July 1999, British and Irish authorities cracked down on pharmacies, salespersons and farmers importing illegal Irish pharmaceuticals - including antibiotics. According to the *Sunday Times*, price differences meant that "Irish pharmacies [were] being bombarded with requests for antibiotics from farmers in Britain."<sup>165</sup> The newspaper also referred to a recent BBC CountryFile episode in which an undercover team had purchased therapeutic antibiotics over the counter in Britain and via mail order from an Irish pharmacist. According to the Soil Association, "as many as 10,000 farms in Britain"<sup>166</sup> could be using antibiotics illegally.<sup>167</sup> Amidst continuing

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156□ 'Planet organic', *Observer Magazine*, 27.06.1999, p. G14.

157□FAO Economic and Social Development Department, 'World Markets for Organic Fruit and Vegetables', *FAO Corporate Document Repository*; [<http://www.fao.org/docrep/004/y1669e/y1669e0f.htm>], accessed 12 Sep 2013]

158□Cf. Rachel Strain, 'Worth every penny or a trendy rip-off?', *Daily Mirror*, 23.03.1999, p. 28; Jim Ainsworth, 'Reader's digest', *Observer Magazine*, 27.06.1999, p. G65; James Meikle, 'Nurture through nature challenges chemical farming', *Guardian*, 07.09.1999, p. 6; James Erlichman, 'A little bit more than muck and grannies', *Guardian*, 19.10.1999, p. 2; Simon Brooke, 'Orkney's organic triumph - Country Life', *Times*, 16.10.1999, p. 8.

159□Libby Purves, 'Called to ordure', *Times*, 26.10.1999, p. 24.

160□*ibid.*

161□ 'Planet organic', *Observer Magazine*, 27.06.1999, p. G14.

162□*ibid.*

163□*ibid.*

164□Cf. Advisory Committee on the Microbiological Safety Of Food, 'Report on Microbial Antibiotic Resistance in Relation to Food Safety', (London: HMSO, 1999).; James Meikle, 'Chicken farming criticised', *Guardian*, 30.12.1999, p. 4.

165□John Burns and Stephan Bevan, 'Police probe Irish farm drugs racket', *Sunday Times*, 04.07.1999.

166□*ibid.*

167□Cf. James Meikle, 'Crackdown on animal drugs scam', *Guardian*, 07.09.1999, p. 6.

concern about resistant pathogens and failing antibiotics,<sup>168</sup> the *Guardian* claimed that ca. half of British antibiotics were given to animals.<sup>169</sup>

Probably anticipating further bans, the Grampian Country Food Group, the UK's biggest chicken producer, announced that it would stop using antibiotic growth promotion in September 1999. Having conducted secret trials, the company claimed that the withdrawal would not lead to price increases.<sup>170</sup> Taken aback by the move, the *Guardian* commented that Grampian's initiative could "signal the biggest revolution in years in the way that animals are reared for the dinner table, and chalk up a major victory in the battle to reduce the use of antibiotics in agriculture."<sup>171</sup> In November 1999, Marks & Spencer announced that it would ban all poultry products produced with the help of antibiotic growth promoters.<sup>172</sup>

The new millennium did not alter media attitudes. Referring to antibiotic-overuse and BSE, the *Times*'s Graham Harvey reckoned that public opinion had turned for good "against destructive industrial farming."<sup>173</sup> Juxtaposing the lives of the "convenience" and the "organic family", the *Daily Mirror* claimed that "organic food is less processed (...) and organic meat doesn't contain antibiotic residues."<sup>174</sup> With Prince Charles and MPs from all parties backing 'green topics', the conspicuous consumption of antibiotic-free organic food was now an accepted way of showing 'progressive' credentials.<sup>175</sup>

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168<sup>□</sup>Cf. Sarah Boseley, 'Try to love your body bugs', *Guardian*, 08.09.1999, p. 8; Sarah Boseley, 'Alarm as superbug hits British hospital', *Guardian*, 06.09.1999, p. 1; Helen Rubelow, 'Scientists warn of 'superbugs' in community', *Times*, 05.11.1999, p. 10; Miriam Stoppard, 'Will germ beaters breed super bugs?', *Daily Mirror*, 27.03.2000, p. 27; James Meikle and Paul Brown, 'Alarms rang 50 years ago', *Guardian*, 07.09.1999, p. 6; Steve Jones, 'Heads in the ground', *Guardian*, 07.09.1999, p. 19.

169<sup>□</sup>'Use and abuse', *Guardian*, 06.09.1999, p. 3.

170<sup>□</sup>Cf. Valerie Elliott, 'Chicken firm axes growth promoter', *Times*, 02.09.199, p. 10; however, according to the *Observer*, the Assured Chicken Production scheme agreed to by the chicken industry in 2000, which used the Little Red Tractor Logo, changed its guarantee to ban antibiotic growth promoters in 2002 and agreed to allow preventive doses of growth promoters under veterinary supervision - a use, which was probably illegal under EU AGP legislation; the companies accounted for 85% of British poultry production 2003; Andrew Purvis, 'If Max eats up all his chicken, he'll grow to be a big, strong boy. Unless it kills him first', *Observer*, 10.08.2003, p. F25.

171<sup>□</sup>James Meikle, 'Shock at food drugs ban', *Guardian*, 02.09.1999, p. 1.

172<sup>□</sup>Cf. James Meikle, 'M&S phases out antibiotics in chicken', *Guardian*, 19.09.1999, p. 6; co-op announced a promotion of GM and antibiotic-free foods in July 2000; cf. James Meikle, 'Co-op to end junk food ads on children's TV', *Guardian*, 06.07.2000, p. 9.

173<sup>□</sup>Graham Harvey, 'Good food needs green farms', *Times*, 01.01.2000, p. 16; cf. also Tracy McVeigh, 'Killer bug sparks new food scare', *Observer*, 02.01.2000, p. 17.

174<sup>□</sup>Hilary Freeman, 'Who's healthier?', *Daily Mirror*, 28.12.2000, p. 25; the 'convenience family' had the telling name "The Dudleys"; during Christmas 2000, the *Daily Mirror* reported on the pharmaceutical content of an average Christmas meal with the help of Friends of the Earth; cf. Tracey Harrison, 'So did you enjoy your antibiotic additive with chemical trimming?', *Daily Mirror*, 26.12.2000, p. 6.

175<sup>□</sup>Reports about Prince Charles' organic preferences dated back to the 1980s, however, by the late 1990s, all newspapers saw his support for organic food as progressive; during the 2000s MPs such as the Tory Zac Goldsmith gave left-leaning newspapers such as the *Guardian* tours of their favourite farmers' markets and talked about their organic eating habits; cf. Stuart Jeffries, 'True-blue green', *Guardian*, 03.12.2005, p. 31; Zac Goldsmith is nephew of *Ecologist* and *Green Party* co-founder and co-author of the *Blueprint for Survival* Edward Goldsmith; in 2013, Zac Goldsmith was one of the main supporters of renewed initiatives against agricultural antibiotics; 'Early day motion 566: Use of Antibiotics in Intensive Farming. 15.10.2012', *Parliament.uk*, [<http://www.parliament.uk/edm/2012-13/566>, accessed

However, following the early 2000s, antibiotics' hegemonic role within agricultural criticism gradually diminished. Although antibiotic-related scandals continued to occur with worrying regularity<sup>176</sup> and organic food's antibiotic-purity remained a major selling point,<sup>177</sup> other controversial issues became more prominent.<sup>178</sup> Only the *Guardian* initially maintained its role as a platform for antibiotic protest. In 2000, the newspaper warned that "far from receding, the gaping abyss [of antibiotic resistance] now looks even more threatening."<sup>179</sup> Claiming that "one-off campaigns achieve little,"<sup>180</sup> the newspaper complained that the 1998 bans were insufficient. In addition, the *Guardian* reported on the dangers of antibiotic resistance, attempts to ban the veterinary use of enrofloxacin because of cross-resistance to the quinolone antibiotics and on bacterial resistance against the only recently licensed antibiotic linezolid.<sup>181</sup> However, by 2004, the *Guardian*'s 20-point-list of chemical threats only mentioned antibiotics in place 16.<sup>182</sup>

As a consequence of re-emerging public complacency, the EU's decision to ban remaining growth promoters in September 2003 received little attention.<sup>183</sup> Of the analysed newspapers, only the *Observer* commented with an article titled: "If Max eats up all his chicken, he'll grow to be a big, strong boy. Unless it kills him first."<sup>184</sup> Revealing that large parts of the British poultry industry had reverted to 'preventive' growth promotion in 2002, the article reconstructed Max's contamination with resistant pathogens:

As the chicken oozes unappetisingly on the top shelf of your fridge, wrapped in a leaky carrier bag, blood drips on to the cheddar cheese below – the classic 'cross contamination' sequence – and seeps through its paper wrapper. Making yourself a cheese sandwich next day, you don't notice the bacteriological accompaniment – but you have inadvertently eaten uncooked enterococci.<sup>185</sup>

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16.09.2013]

176<sup>□</sup>Cf. James Meikle, 'Danger warning after increase in drug residues found in eggs', *Guardian*, 14.04.2004, p. 2; Valerie Elliott, 'Shoppers duped in organic meat scam', *Times*, 15.05.2006, pp. 1-2; James Meikle, 'Danger warning after increase in drug residues found in eggs', *Guardian*, 14.04.2004, p. 2; Michael Durham, 'A bitter taste of honey', *Guardian*, 21.07.2004, p. 16; James Meikle, 'Imported foods could be responsible for growth of superbugs', *Guardian*, 12.09.2005, p. 5.

177<sup>□</sup>Cf. 'There's a little place I know ... Where do Nigella, Jamie and Nigel really shop and eat', *Observer*, 08.06.2003, p. F49; Paul Johnson, 'Organic .. Fab or fad?', *Daily Mirror*, 02.09.2004, p. 40.

178<sup>□</sup>Cf. Felicity Lawrence, 'Chemical World: Food Chained', *Guardian*, 15.05.2004, p. 4.

179<sup>□</sup>Malcolm Dean, 'Staring into the abyss', *Guardian*, 22.11.2000, p. 7.

180<sup>□</sup>Ibid.

181<sup>□</sup>Cf. 'Dishing the dirt', *Guardian*, 28.11.2000, p. 8; James Meikle, 'Poultry drug could put humans at risk', *Guardian*, 02.11.2000, p. 4; James Meikle, 'Wonderdrug' losing war with superbugs', *Guardian*, 13.04.2001, p. 1; James Meikle, 'Superbug fear among children', *Guardian*, 17.05.2001, p. 7.

182<sup>□</sup>'Chemical World: 20 ways to cut out chemicals', *Guardian*, 15.05.2004, Special Supplement, p. 32.

183<sup>□</sup>Cf. (EC) No. 1831/2003.

184<sup>□</sup>Andrew Purvis, 'If Max eats up all his chicken, he'll grow to be a big, strong boy. Unless it kills him first', *Observer*, 10.08.2003, p. F25.

185<sup>□</sup>Ibid.

Referring to the EU ban, the *Observer* cautioned that “growth promoters are only the tip of the antibiotic iceberg” .<sup>186</sup> According to the newspaper, only 43 tons out of the 463 tonnes of antibiotics used on farm animals were actually sold as growth promoters. Banning antibiotic growth promotion without accompanying reforms of the intensive livestock sector would have little effect on overall resistance levels. Animals would simply be given therapeutic doses of antibiotics to compensate their bad health.<sup>187</sup>

Unfortunately, the *Observer*’s warnings did not have a strong impact. When subtherapeutic growth promotion was finally banned EU-wide in 2006, none of the analysed newspaper reported. Meanwhile, British farmers continued to use agricultural antibiotics – albeit in therapeutic doses.

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<sup>186</sup>ibid.

<sup>187</sup>ibid.

## British Farming

Indeed, it was farmers' interpretation of Swann as a technical fix that made them welcome the report in late 1969. As mentioned earlier, farmers could switch to other antibiotic growth promoters or acquire therapeutic antibiotics on prescription.

In spite of the silence on the antibiotic front, the new decade held many challenges for British farmers. Following EEC membership in 1973, farmers faced the dual task of having to fend off cheap European imports and counter charges of exorbitant subsidies.<sup>188</sup> In 1973, membership in the EEC's Common Agricultural Policy (CAP) forced Britain to pay an estimated £ 70 million from agricultural levies to the EEC. By the mid-1980s, the outflow of national revenues had increased to over £ 800 million.<sup>189</sup>

Meanwhile, agricultural surpluses continued to grow: between 1970 and 1980, total meat output from cattle, pigs and sheep increased from 2,100,000 tons to 2,305,000 tons.<sup>190</sup> Significantly, the gains were achieved by fewer people: between 1971 and 1981, the active male population in British agriculture, forestry and fishing decreased from 643,000 to 425,000 people.<sup>191</sup> The concentration process was spearheaded by the poultry sector: in 1967, a total of 3,700 British broiler producers had an average flock of 9,800 birds. Twenty years later, 2,000 units were operating with an average flock of 33,000 birds.<sup>192</sup>

However, the 1970s saw British meat consumption beginning to stagnate. Following an all-time high of 215 grams per person per week in 1975, beef consumption fell to 164 grams per person per week in 1984. Although pork, bacon and ham consumption rose to 215 grams per person per week in 1978, it subsequently fell to 197 grams per person per week in 1985. Again, the poultry sector proved a curious exception: between 1974 and 1986, poultry consumption rose from 115 to 156 grams per person per week.<sup>193</sup> While saturated markets depressed farmers' income,<sup>194</sup> low meat prices forced CAP governments to so-called intervention purchases, which produced the notoriously expensive 'butter and meat mountains'. By 1983, Britain alone was storing 177,000 tons of intervention butter stocks.<sup>195</sup>

<sup>188</sup> B. A. Holderness, *British Agriculture since 1945* (Manchester: Manchester University Press, 1985), pp. 37-40.

<sup>189</sup> Ibid., p. 40.

<sup>190</sup> The numbers are taken from C8 Europe: Meat Output. Volume 3; Palgrave Macmillan, 'International Historical Statistics', (Palgrave Macmillan, April 2013 ). (DOI: DOI: 10.1057/9781137305688.0626)

<sup>191</sup> The numbers are taken from B1 Economically Active Population By Major Industrial Groups. Ibid. (DOI: 10.1057/9781137305688.0601)

<sup>192</sup> John Martin, *The Development of Modern Agriculture. British Farming since 1931* (London et al. : MacMillan & St. Martin's Press, 2000), p. 128.

<sup>193</sup> Data taken from the UK's Department for Environment, Food & Rural Affairs (DEFRA), 'Family food datasets', [<https://www.gov.uk/government/statistical-data-sets/family-food-datasets>, accessed 19.09.2013]

<sup>194</sup> Cf. Berkeley Hill, *Farm Incomes, Wealth and Agricultural Policy: Filling the Cap's Core Information Gap*. (4 edn.; Wallingford, Cambridge MA: CABI, 2012), p. 119.

<sup>195</sup> Martin, *The Development of Modern Agriculture. British Farming since 1931*, p. 109.

Trapped in a spiral of expansion and lower prices, farmers' reliance on intensive agricultural technologies further increased. In a buyers' market, the producer with the cheapest product had a major sales advantage. As a consequence, technologies maximizing yield and minimizing loss were very popular. Between 1944 and the mid-1980s, the number of licensed farm pesticides in Britain rose from 65 to over 800 products constituting a market worth over £300 million.<sup>196</sup> Between 1972 and 1984, farmers' expenditure on artificial fertilisers increased from £200 million to £950 million.<sup>197</sup>

As described, farmers' chemical dependency did not win the approval of an increasingly urban public. However, it would be wrong to speak of a binary opposition between conventional farmers and environmentalists. In spite of popular portrayals, British farmers did not present a uniform camp. Instead, farmers themselves were torn between the technological requirements of intensification on the one hand and environmentalist values on the other hand.

During the 1970s, both *Farmers' Weekly* and the NFU organ *British Farmer & Stockbreeder* (BFS) contained a surprising amount of self-critical contributions. In January 1975, the 'Editor's Diary' in *Farmers' Weekly* attacked intensive agriculture's focus on simplification and rationalisation.<sup>198</sup> Titled "Look Ahead in Search of a Road out of Farming's Crisis,"<sup>199</sup> another article saw the demise of small farmers and growing environmental problems as two sides of the same coin:

Industrial man has seen himself as conqueror of the earth (...). If farming is to be organised it must be organised by husbandmen and not by industrialists. Agriculture almost alone of the productive arts of man can and should be so conducted that its capacity is infinite.<sup>200</sup>

A few weeks later, David Stickland, the managing director of Organic Farmers & Growers attacked conventional agriculture's focus on cheap food. Titled "Goodbye chemicals - hello, good husbandry",<sup>201</sup> Stickland warned that chemical inputs would grow more expensive while "biological methods" could naturally "release plant foods locked up in the soil."<sup>202</sup> In a similar vein, E.S.P. Raymond from Cheshire warned that "chemicals don't replace the hoe."<sup>203</sup> Meanwhile, Mrs A.M. Allen from Potters Bar called for a closer alliance between conventional farmers and the "welfare

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<sup>196</sup>Ibid., p. 102.

<sup>197</sup>Ibid., p. 103.

<sup>198</sup>Cf. 'Editor's Diary', *FW*, LXXXII/3 (17.01.1975), p. 39.

<sup>199</sup>'Look Ahead in Search of a Road out of Farming's Crisis', Ibid, p. 72.

<sup>200</sup>Ibid.

<sup>201</sup>David Stickland, 'Goodbye chemicals - hello, good husbandry', *FW* LXXXII/5 (31.01.1975), p. 77; Stickland also sent a letter to the editor to *BFS*, cf. David Strickland, 'Organic farming has the answers', *BFS*, 4/98 (15.03.1975), p. 8.

<sup>202</sup>Ibid.

<sup>203</sup>ESP Raymond, 'Chemicals don't replace the hoe', *BFS*, 5/108 (02.08.1975), p. 3.

lobby” , who were “composed of ordinary decent people” <sup>204</sup> and subsidised farmers with their taxes. <sup>205</sup> Regarding the introduction of new technologies, *BFS* published an article acknowledging potential dangers and titled: “Let’ s have some answers, please, about hormones.” <sup>206</sup>

Instead of only occupying farmers professionally, environmentalism also entered their homes. Targeting farmers’ wives, agricultural magazines’ household & family sections dealt extensively with environmentalism’ s facets. Mocking her fancy urban friends, *BFS*’ ‘Farmer’ s Home’ columnist Sheila Jenner claimed that the “rural self-sufficiency kick” was the “new religion of the smartest people around.”

If you aren’ t growing your own vegetables in Chelsea these days, you’ re really out of the social swim. (...). You can’ t turn on TV, switch on the radio, or pick up a newspaper or a magazine, without learning that because of the shortage of cash, energy and resources, allied to a vogue for the rejection of ‘consumerism’ , we must all be growing our own vegetables and fruit, recycling everything in sight - and is there room for a pig in the suburban back garden?<sup>207</sup>

According to Jenner, one of her friends - a film director - had moved to the countryside and now spent his mornings milking a cow and feeding his hens and calves: “nobody would guess that this was a man who, just a few months ago, thought that civilisation ended in Watford.” <sup>208</sup> In Jenner’ s opinion, it was nice “to find that we country bumpkins are generations ahead of the pack.” <sup>209</sup>

However, environmentalist articles also faced stiff competition in agricultural magazines. Often printed right next to those endorsing ‘green’ sentiments, many articles advocated further intensification. According to Michael Joughin, 1975 would see British farmers doing what they had always done: “get a few more gallons out of a few more cows on fewer acres.” <sup>210</sup> In another contribution, Labour MP John P. Mackintosh exhorted farmers to increase their production and avert “world food shortage.” <sup>211</sup> In a letter to *BFS*, D Lort-Philips announced that food output would have to rise by 44% between 1971 and 1985 in order to ensure “present inadequate nutritional standards.” <sup>212</sup>

Should environmentalist and agricultural interests clash, most commentators’ green sentiments proved skin-deep. Referring to criticism of intensive dairy farming, Dunstan Court “tremble[d] to think what might happen if the animal welfare lobby

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<sup>204</sup>□A.M. Allen, ‘Don’ t ignore the ‘Welfare Lobby’ , *BFS*, 4/88 (12.10.1974), p. 5.

<sup>205</sup>□Cf. also Dunstan Court, ‘Pigs appeal’ , *BFS*, 4/93 (04.01.1975), p. 25.

<sup>206</sup>□ ‘Livestock: Let’ s have some answers, please about hormones’ , *BFS* 4/10 (26.04.1975), p. 23.

<sup>207</sup>□Sheila Jenner, ‘It’ s back to nature for smart townees’ , *BFS*, 4/103 (24.05.1975), p. 41.

<sup>208</sup>□*ibid.*

<sup>209</sup>□*ibid.*

<sup>210</sup>□Michael Joughin, ‘The real wealth of Britain’ , *FW LXXXII/2* (10.01.1975), p. 75.

<sup>211</sup>□John P. Mackintosh, ‘Talk food and health to gain support’ , *FW LXXXII/2* (10.01.1975), p. 80.

<sup>212</sup>□D Lort-Philips, ‘World food lags behind demand’ , *BFS* 4/108 (21.06.1975), p. 5.

gets its claws into the poor old milk producer.”<sup>213</sup> If activists had their way, farmers would soon face a “Brambellised set of regulations abolishing the vacuum teatcup and reinstating the bucket and fingers era.”<sup>214</sup> In a similar vein, farmers reacted extremely hostile to *Brass Tacks*’ 1979 attack on intensive animal husbandry. According to the *Guardian*, “farmers and butchers [were] furious.”<sup>215</sup> The NFU was even considering taking out an injunction against the *Radio Times* and promised “to send ‘hot missiles’ to the BBC’s chairman,”<sup>216</sup> who was none other than Michael Swann.

However, in cases where interests aligned, British farmers had no problem mobilising public concerns for their own purposes. In 1973, the British Poultry Federation pressured supermarkets to reject consignments of Dutch poultry fed with therapeutic antibiotics.<sup>217</sup> One year later, antibiotic growth promotion featured prominently in a trade war between British and French egg producers. In this case, warnings against French antibiotic-use were clearly used to protect British farmers’ commercial interests.<sup>218</sup> Putting it bluntly, *Farmers’ Weekly* commented: “The point at issue is not that French eggs are a health hazard to consumers. It is that the French have a way of shipping unprofitability to Britain in an unfair trading package.”<sup>219</sup> With emotions running high, the United Kingdom Egg Producers’ Association gathered money for court action against the MAFF<sup>220</sup> and West Country farmers organised pickets and boycotts against French produce.<sup>221</sup>

Meanwhile, CAP integration also exposed British farmers’ own problems. During the 1970s, there was mounting concern over mastitis in the British dairy herd. The disease was measured by counting the *somatic* (i.e. white-) cells in infected cows’ milk. With stricter EEC rulings on *somatic* cell-counts looming, commentators feared losses of up to a quarter of British milk production.<sup>222</sup> As a consequence, experts advocated better dairy hygiene and increased use of antibiotic dry therapy.<sup>223</sup> In contrast to their parallel criticism of French antibiotic-eggs, British commentators remained remarkably sanguine regarding a potential increase of antibiotic-resistance and residues resulting from dry cow therapy.<sup>224</sup> In early 1975, *Farmers’ Weekly* even published an

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<sup>213</sup> Dunstan Court, ‘Teatcup storm’, *BFS*, 4/98 (15.03.1975), p. 32.

<sup>214</sup> *Ibid.*

<sup>215</sup> *Ibid.*

<sup>216</sup> *Ibid.*

<sup>217</sup> Cf. Joan Smith, ‘Health Ban On Chicken Sales’, *Daily Mirror*, 08.05.1973, p. 3.

<sup>218</sup> Cf. Dennis Barker, ‘Producers predict £1 a dozen eggs’, *Guardian*, 05.08.1974, back page col 3.

<sup>219</sup> ‘New Rules Wanted For Egg Imports’, *FWLXXXII/5* (31.01.1975), p. 35.

<sup>220</sup> Cf. *Ibid.*

<sup>221</sup> Cf. J. W. Murray, ‘A crack at French eggs’, *Observer*, 02.02.1975, p. 1.

<sup>222</sup> Mastitis already caused an annual loss of ca. 30 mil pounds of milk; cf. ‘Mastitis. We can do much better than this’, *BFS* 4/93 (04.01.1975), p. 19; Peter Bell, ‘It’s time to end Mastitis apathy’, *BFS* 4/101, p. 33.

<sup>223</sup> Cf. *Ibid.* and ‘Milk Hygiene. Super dairymen are needed’, *BFS* 4/99 (29.03.1975), p. 25.

<sup>224</sup> Only one article in *BFS* addressed the hazards of covering up bad practice with antibiotics; cf. ‘Salmonella ‘time bomb’ threatens our dairy herds’, *BFS* 4/103 (24.05.1975), p. 18.



educational song titled “Mastitis, yeh, yeh, yeh” [sic], which was sung to the tune of ‘Pack up your troubles in your old kit-bag’ :

Treat all your udders with a dry cow tube  
And smile, smile, smile,  
Maybe you think the cost is pretty rude,  
But it really is worthwhile.  
Bugs can cause mastitis,  
They always run so wild,  
So treat all your udders with a dry cow tube  
And smile, smile, smile.<sup>225</sup>

With the economic climate growing tougher towards the end of the 1970s, the agricultural community grew markedly cooler toward attempts to reform intensive practices. Economically, many British farmers blamed the CAP for their plight. Having retained many sovereign rights during a five-year transition period, Britain was fully integrated following 1978.<sup>226</sup> Used to a high corporatist level of political influence, many farmers felt abandoned by their government and the NFU and blamed the CAP for flooding British markets with cheap foreign produce.<sup>227</sup> As a consequence, the late 1970s and early 1980s were marked by sporadic outbursts of xenophobe sentiments and increasingly militant protests. Angry about French import bans in 1980, British farmers attempted to deliver “a British lamb to the firmly closed French embassy” while singing “jingle jangle, Giscard dangle.”<sup>228</sup> Reacting to growing unrest amongst NFU members, the *BFS* cautioned militant farmers to stay on the path of negotiation: “We are self-employed entrepreneurs, the potential victims, not the perpetrators, of ‘industrial action.’”<sup>229</sup>

Elected in the year of the second oil crisis, the Thatcher government did little to redress the situation. In spite of halving British CAP contributions after the 1984 Fontainebleau conference, the Thatcher administration did not pass on savings to British farmers. More interested in deficit reductions and low consumer prices, the government continued to overvalue the so-called green pound – one of a number of artificial currencies created by the EEC to determine centrally calculated CAP prices in relation

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225□ ‘Mastitis, yeh, yeh, yeh’ , *FW* LXXXII/3 (17.01.1975), p. 100.

226□ Martin, *The Development of Modern Agriculture. British Farming since 1931*, pp. 142-43.

227□ Following the disappointing 1975 price review, *BFS* admitted that “perhaps [the result] is an unconscious measure of the extent to which our economic fortunes as an industry are now determined outside those hushed negotiating chambers in Whitehall, where the current Review is now in progress.” ; ‘Review decisions still govern our fate’ , *BFS* 4/94 (01.02.1975), p. 3; cf. also ‘Anger as Irish exploit their EEC advantage’ , *BFS* 4/89 (26.10.1974), p. 7; ‘Hundreds join port pickets’ , *BFS* 4/90 (09.11.1974), pp. 8-9; ASC Sanderson, ‘Don’t be unfair to the Tories’ , *BFS* 4/91 (23.11.1974), p. 5.

228□ ‘A Caning From Their Lordships’ , *BFS* 9/213 (26.04.1980), p. 10.

229□ ‘Militant fervour could lead us far away’ , *BFS*, 4/93 (04.01.1975), p. 3; the grass-roots organisation ‘Farmers’ Action’ was also founded during this time; cf. Charles H Phalp, ‘Farmers’ Action is here to stay’ , *FW*, 17.01.1975, p. 39; occasionally, anti-CAP sentiments combined themselves with blatant xenophobia; cf. Roscoe Howell, ‘Woe unto the husbandmen (A jeremiad of our own time)’ , *BFS* 4/89 (26.10.1974), p. 35; ‘Will we take to the streets like France’ , *BFS* 9/218 (05.07.1980), p. 3.

to national currencies.<sup>230</sup> As a consequence, CAP payments to British farmers were worth less. Once again, things were worst for small farmers: by 1983, 13 per cent of British farms accounted for 50 per cent of the industry's net output. At the same time, real income continued to fall to an average nadir of £4894 in 1980 in comparison to £12,058 in 1973.<sup>231</sup> Furious about the parallel "axing" <sup>232</sup> of lucrative school meals, agricultural commentators warned that British farmers were mere "victims of the pawn game" <sup>233</sup> between Thatcher and the EEC.

With economic pressure exacerbating pressure for intensification, farmers reacted particularly hostile to the rise of 1980s animal rights activism. In 1980, *BFS* titled: "Animal welfare: NFU declares war." <sup>234</sup> Warning that "extremists" had "taken over the RSPCA" and "were attempting to do the same in the political parties", speakers at the NFU's Annual General Meeting called on the union to "counter 'emotional, misleading and inaccurate attacks (...) by the welfare lobby.'" <sup>235</sup> In September 1980, the NFU published a pamphlet titled "Sense or Sentiment?", which supposedly dealt with "welfare arguments in an objective, unhysterical manner." <sup>236</sup> In the same year, *BFS* published an article titled "Welfarists subdued by factory farm visit." <sup>237</sup> According to the magazine, a recent visit to Chris Turton's Egypt Farm in Sussex had left "a group from the anti-factory farming organisation Compassion in World Farming" speechless: "One ardent anti-factory farming visitor said 'It's not as bad as I had seen on television. The pigs particularly look contented, clean and very quiet.'" <sup>238</sup>

Environmentalism criticism in other quarters could also trigger hostile reactions. In *BFS*, Monty Keen attacked Marion Shoard's book *The Theft of the Countryside*. Titled "Bitching about the countryside," <sup>239</sup> Keen's article urged farmers to be wary of activists' growing power. According to Keen, livestock producers had become particularly vulnerable to "any outcry over a food manufacturing process using allegedly objectionable substances or treatments." <sup>240</sup> Originating in the US, European activists were adopting Ralph Nader's style "as a windmill-tilting warrior" for consumerism:

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<sup>230</sup> Martin, *The Development of Modern Agriculture. British Farming since 1931*, pp. 142-44.; for an explanation of CAP pricing during the late 1970s and 1980s cf. *Ibid.*, pp. 138-39.

<sup>231</sup> *Ibid.*, p. 149.

<sup>232</sup> Cf. 'School meal abolition angers farm workers', *BFS* 9/221 (16.08.1980), p. 27.

<sup>233</sup> 'Victims of the pawn game', *BFS* 9/214 (10.05.1980), p. 3.

<sup>234</sup> 'NFU Annual Meeting: Issues of concern', *BFS* 9/209 (01.03.1980), p. 25; cf. also 'RSPCA Cauldron Still Simmering', *BFS* 9/210 'Assault on batteries', *BFS* 9/217 (21.06.1980), p. 21; Peter Bell, 'Battery controversy is the top welfare issue', *BFS* 9/214 (10.05.1980), p. 13.

<sup>235</sup> *Ibid.*

<sup>236</sup> 'Raising the animal welfare profile', *BFS* 9/222 (06.09.1980) [sic], p. 3.

<sup>237</sup> 'Welfarists subdued by factory farm visit', *BFS* 9/219 (19.07.1980), p. 14.

<sup>238</sup> *Ibid.*

<sup>239</sup> Monty Keen, 'Bitching about the countryside', *BFS* 9/226 (22.11.1980), p. 41.

<sup>240</sup> *Ibid.*

It's pretty easy to see what could happen if a person claiming scientific expertise were to declare some additive previously considered innocuous to have definite carcinogenic associations, however dubious the research or questionable the conclusions. Generally the reports come from America, where the authorities have more than once been pressured into acting prematurely and (as subsequently transpire) unwisely, in banning substances which did more good than harm. The sorry history of the edicts against DDT and cyclamates show what could happen.<sup>241</sup>

Regarding re-emerging criticism of agricultural antibiotics, farmers' attitudes were more nuanced. As astute observers, farmers took note of physicians' and veterinarians' different evaluation of agricultural antibiotic-use. Reporting on the 1980 BVA congress, *BFS* noted that "despite an attack by the medical profession represented by Dr Threlfall," the "use of antibiotics in agriculture received strong support"<sup>242</sup> from veterinarians. According to veterinarian Dr John Walton, "the medicos [were] wrong."<sup>243</sup> While Walton criticised "farmers' use of sub-standard black market drugs,"<sup>244</sup> he doubted that further antibiotic restrictions would prevent salmonellosis. Nonetheless, Walton cautioned veterinarians against over-prescription and leaving large quantities of antibiotics on farms.<sup>245</sup>

Aware that farmers' continued access to pharmaceuticals depended on their image as responsible users, the agricultural media did not oppose new regulations governing the sale of veterinary medicines in 1980. According to the new regulations, only authorised merchants were allowed to sell medicines named on the Farmers List (or Merchants List). In particular, the regulations targeted "itinerant van sales" and dubious "salesmen who call 'on spec'."<sup>246</sup> Attempting to rally farmers against restrictions, S. Bootland from the British Distributors of Animal Medicines Association claimed that "restrictive distribution would increase [farmers' expenses] by more than 30%."<sup>247</sup> According to Bootland, it was "much better that the farmer continues to benefit by purchasing from whatever qualified supplier gives the best service."<sup>248</sup> Fortunately, Bootland's cause did not find many supporters.

Meanwhile, excessive *somatic* cell counts and antibiotic residues continued to plague British milk production. Although new technologies such as anti-blowback devices helped reduce mastitis,<sup>249</sup> tougher residue testing caused problems. During the late 1970s, testing sensitivity had increased from 0.05 international units of penicillin

<sup>241</sup> *Ibid.*

<sup>242</sup> 'Conflict over antibiotics', *BFS* 9/223 (04.10.1980), p. 14; cf. also 'Vet predicts livestock revolution', *BFS* 9/222 (06.09.1980) [sic], p. 3.

<sup>243</sup> 'Conflict over antibiotics', *BFS* 9/223 (04.10.1980), p. 14

<sup>244</sup> *Ibid.*

<sup>245</sup> Cf. *Ibid.*

<sup>246</sup> 'Stricter controls over medicine', *BFS* 9/207 (02.02.1980), p. 25.

<sup>247</sup> S Bootland, 'Letter to the editor', *BFS* 9/222 (06.09.1980), p. 5. *Ibid.*; cf. also S Bootland, 'Farm drugs on prescription', *BFS* 9/216 (07.06.1980), p. 8.

<sup>248</sup> S Bootland, 'Letter to the editor', *BFS* 9/222 (06.09.1980), p. 5.

<sup>249</sup> Cf. 'Anti-blowback device could help control mastitis', *BFS* 9/206 (12.01.1980), p. 37; 'Mastitis medicine', *BFS* 9/214 (10.05.1980), p. 23.

per ml to 0.02 international units per ml. In November 1979, MMB data revealed that 900 - 1,000 out of a total of 47,000 dairy farmers regularly produced milk with excessive antibiotic residues.<sup>250</sup> Describing reality on many farms, W. F. Gilkes claimed that “we are all human, and the odd cow may get milked by mistake.”<sup>251</sup> Slightly more concerned, *BFS* warned:

What is disturbing about these figures is that the incidence of test failures in the UK is 20 times that in other countries, apart from Eire, despite the fact that most use a more sensitive test: And equally most (again excluding Eire) impose more severe penalties.<sup>252</sup>

Reacting to antibiotic-problems, the MMB increased penalties for antibiotic residues in milk. According to the new system, first-time offenders would be fined 5 pence per litre, second-time offenders 7 pence per litre and third-time offenders would have to pay a “swingeing rate”<sup>253</sup> of 9 pence per litre. However, the half-hearted penalty increase was unsuccessful. Receiving 11p for every litre of uncontaminated milk,<sup>254</sup> farmers continued to sell contaminated milk because the chance of incurring a fine was less problematic than foregoing earnings completely.<sup>255</sup> Unsurprisingly, a 1982 comparison found that British milk continued to contain the highest level of antibiotic residues in Europe.<sup>256</sup>

Meanwhile, overproduction and declining agricultural incomes continued to increase intensification pressures.<sup>257</sup> Attempting to curb overproduction, the European Community (EC) introduced dairy quotas in 1984 and forced farmers to let their land lie fallow in 1986.<sup>258</sup> Once again, small farmers were hit harder than large-scale producers.<sup>259</sup>

Worn down by the long economic crisis and public criticism of intensive agriculture, many British farmers became more and more willing to consider alternative methods - even if this meant embracing environmentalist ideas. Following its 1984 annual general meeting, the NFU announced:

There has been a particularly important public reaction to the impact of agriculture on the environment. Against this background it seems right to

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250□ Hugh Clayton, ‘Milk penalties increased’, *Times*, 14.11.1979, p. 3.

251□ WF Gilkes, ‘Obsesses with penalties’, *BFS* 9/221 (16.08.1980), p. 6.

252□ ‘Mastitis medicine’, *BFS* 9/214 (10.05.1980), p. 23.

253□ ‘Tougher antibiotic tests for milk are coming’, *BFS* 9/219 (19.07.1980), p. 14.

254□ Hugh Clayton, ‘Milk penalties increased’, *Times*, 14.11.1979, p. 3.

255□ Cf. *Ibid.*; cf. also ‘Milk checks needed’, *Times*, 16.10.1981, p. 6.

256□ Cf. Rosemary Collins, ‘British milk has highest antibiotic level in Europe’, *Guardian*, 27.01.1982, p. 4; cf. also ‘Milk checks needed’, *Times*, 16.10.1981, p. 6.

257□ Cf. Gary Corsley, ‘Record margins - but small men losing out’, *FW* 104/18 (02.05.1986), p. 31.

258□ Cf. Rhyddian Jones, ‘‘Fallowing’ - what a nice way of putting it’, *FW* 104/9 (28.02.1986), p. 41; Martin, *The Development of Modern Agriculture. British Farming since 1931*, p. 156; 0159.

259□ Cf. *Ibid.*, p. 160.

conclude that we are now at a watershed and that the era when agricultural expansion was widely accepted as a desirable goal has passed.<sup>260</sup>

Organic agriculture appeared as an especially attractive market niche. In 1986, Sainsbury's and Safeway had started offering organic produce.<sup>261</sup> Significantly, Sainsbury's was paying organic vegetable suppliers an average premium of 35%.<sup>262</sup> According to Robert Davies in *Farmers Weekly*, dairy farms supplying the UK's first mass-produced organic soft cheese were selling their milk at 1.5 pence per litre above market price.<sup>263</sup> In other articles, *Farmers Weekly* advised beef producers to profit from the insecurity about hormones and sell hormone-free organic beef at a premium price.<sup>264</sup> Criticising the shelving of a "high-level government report calling for a state organic farm unit,"<sup>265</sup> *Farmers Weekly* noted that other EEC countries were already strengthening their organic sectors.<sup>266</sup> A few months later, another article warned that British "farmers are missing out on a growing market for organic crops."<sup>267</sup>

Even farmers unwilling to transition to organic agriculture sensed that times were changing. When Britain challenged the EEC hormone ban in 1986, the conventional beef industry cautioned that unilateral action might provoke continental import bans and consumer fears: "Privately, they believe it might be better to face the ban."<sup>268</sup> According to another article, environmentalism and intensive farming were not mutually exclusive: "there is no reason why we should not compete in the world's agricultural markets, (...) and still have a country fit for Robin Hood or Rupert Bear."<sup>269</sup>

In agricultural magazines, readers often supported moves towards non-intensive production. Writing to *Farmers Weekly* in February 1986, Audrey Curran from Surrey described herself as "a suburban housewife who is deeply concerned about intensive farming methods. I am definitely not anti-farmer or a crank or a vegetarian - yet."<sup>270</sup> However, Curran wanted to "make a few comments from the other side of the fence":

I am fed up of being told, as a consumer, that it is my fault if animals are being reared in these intensive units to supply me with cheap food. I don't want it and I don't know of anyone who does when made aware of what is involved.

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<sup>260</sup>Qtd. Acc. to *ibid.*, p. 178.

<sup>261</sup>Cf. John Harvey, 'Ministry buries organic report', *FW* 104/9 (28.02.1986), p. 11.

<sup>262</sup>'Sainsbury goes organic', *FW* 104/8 (21.02.1986), p. 12.

<sup>263</sup>Robert Davies, 'Organic milk wins premium', *FW* 104/19 (09.05.1986), p. 34.

<sup>264</sup>Cf. 'Register for hormone-free beef', *FW* 104/8 (21.02.1986), p. 14; cf. also Michael Gaisford, 'Cutting out hormones wins premium prices', *ibid.*, p. 16.

<sup>265</sup>John Harvey, 'Ministry buries organic report', *FW* 104/9 (28.02.1986), p. 11.

<sup>266</sup>Cf. *Ibid.*

<sup>267</sup>'Organic opportunity', *FW* 104/11 (14.03.1986), p. 13

<sup>268</sup>'Hormones procedure challenged', *FW* 104/11 (14.03.1986), p. 32.

<sup>269</sup>'An utter waste of Merrie England', *FW* 104/11 (14.03.1986), p. 41.

<sup>270</sup>Audrey Curran, 'Don't blame buyers for your methods', *FW* 104/9 (28.02.1986), p. 52.

And, who asked me if it was OK to stuff them with antibiotics? (...). Thank goodness I can at least buy free range eggs and, yes, I do pay extra for them.<sup>271</sup>

One month later, Elizabeth Browning, National Chairman of the Women's Farming Union, encouraged farmers to "take heed of [the] 'healthy eating' message"<sup>272</sup> and produce accordingly. According to Mrs H Clarck from Berwick in Sussex, "housewives will pay for 'natural' foods."<sup>273</sup>

Despite these sweeping changes, many farmers remained hostile towards external criticism and felt misunderstood by the public. In the words of T.J. Perkin from Southam Warks, "it would be refreshing to see our industry represented not as estate barons or smocked, straw-chewing yokels, but as the hard-working families that form the majority."<sup>274</sup> With the agricultural community outraged by attacks on intensive husbandry units,<sup>275</sup> Robert Gair described the fundamental dilemma he shared with many conventional farmers: criticising attacks by "Greenpeacers" [sic] and "the anti-farming, anti-chemical brigade", Gair confessed that he, too, had "no desire to see a countryside without birds, mammals, frogs, butterflies, orchids, and the rest."<sup>276</sup> In order to arrest "detrimental changes in the environment", all parties should engage in a "rational examination" of factors likely to disturb the "balance of nature."<sup>277</sup>

The described dilemma was similar regarding agricultural antibiotics. Unwilling to forsake antibiotic-use, conventional farmers knew that they would have to make concessions to public and medical criticism. While some experts continued to attack the "inane agitation of the lunatic fringe of the animal welfare movement,"<sup>278</sup> other commentators warned that "the public will buy what it wants, and not what some scientist thinks it should buy."<sup>279</sup> According to one contribution, agriculture existed to feed consumers and farmers and not "for the benefit of the chemical industry."<sup>280</sup> In the agricultural press, articles began advertising "no-additive feed"<sup>281</sup> and antibiotic-saving probiotics.<sup>282</sup> Concerned about antibiotic-resistant *salmonella* and *E. coli* in dairy herds, Sheila Furniss advised farmers against feeding antibiotic-laden milk to calves.<sup>283</sup> Formerly encouraging the use of intramammary antibiotics against mastitis, the residue-conscious advisers of the late 1980s called on farmers to use antibiotics cautiously and

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271<sup>□</sup>ibid.

272<sup>□</sup>Elizabeth Browning, 'Take heed of 'healthy eating' message', *FW* 104/10 (07.03.1986), p. 50.

273<sup>□</sup>H Clarck, 'Housewives will pay for 'natural' foods', *FW* 104/11 (14.03.1986), p. 55.

274<sup>□</sup>TJ Perkin, 'BBC misrepresents farmers again', *FW* 104/11 (14.03.1986), p. 55.

275<sup>□</sup> 'Assault on battery forces closure', *FW* 104/19 (09.05.1986), p. 11; ' 'Terrorist' image may harm RSPCA', *FW* 104/8 (21.02.1986), p. 12.

276<sup>□</sup>Robert Gair, 'Hopes rise for not so silent spring', *FW* 107/18 (30.10.1987), p. 37.

277<sup>□</sup>ibid.

278<sup>□</sup>Bill Weeks, 'Public must be given the full farming facts', *FW* 104/21 (23.05.1986), p. 47.

279<sup>□</sup>Stephen R Wharfe, 'Satisfy the public - not scientists', *ibid*, p. 48.

280<sup>□</sup>Stephen R Wharfe, 'Satisfy the public - not scientists', *FW* 104/21 (23.05.1986), p. 48.

281<sup>□</sup> 'No-additive feed', *FW* 104/21 (23.05.1986), p. 55.

282<sup>□</sup>Cf. 'Probiotics soothe stressful calves', *FW* 104/18 (02.05.1986), p. 26.

283<sup>□</sup>Cf. 'Tainted Milk', *FW* 104/9 (28.02.1986), p. 21.

keep records.<sup>284</sup> According to one reader, the past decades had shown that “scientists are not God and have proved very fallible.”<sup>285</sup> As a consequence, farmers should remain suspicious regarding chemical helpers.

Attempting to win back consumer trust, the agricultural media hailed the positive results of the 1987 national meat surveillance scheme. According to *Farmers Weekly*, “health-conscious consumers who worry without foundation about chemical and drug contamination in meat can take comfort.”<sup>286</sup> Its confidence bolstered by low residue levels in British meat, the magazine also lashed out against critics: “No doubt our critics will prefer to ignore this report for it refutes the claims that livestock producers dose and inject their animals willy-nilly.”<sup>287</sup> According to the magazine, consumer fears had created a veritable testing industry seemingly “hell-bent on proving that wholesome food is positively dangerous” and capable “of sniffing down to parts per billion.”<sup>288</sup> However, veterinarians had repeatedly shown that the use of chemical additives in meat production was completely safe. According to *Farmers Weekly*, it was important “to spread the gospel before political pressures remove yet more useful pharmaceuticals from the market and restrict research.”<sup>289</sup>

Meandering between hostility and insecurity, the controversies surrounding residues and feed additives also primed farmers’ initial reaction to BSE. As with antibiotics, conventional experts initially rallied to defend the reputation of British food. In October 1987, MAFF vets announced that BSE “is not of epidemic proportions, (...) and is not very significant when compared with losses from other nervous disorders.”<sup>290</sup> Meanwhile, *Farmers Weekly* warned that “BSE thrives on rumours”:<sup>291</sup>

Current scare stories are that Holsteins are riddled with it, systemic organophosphorus warble fly dressings cause it, or one of those new-fangled silage additives is to blame. Thank goodness witchcraft is out of fashion, otherwise the old lady who vies in the cottage down the lane with a black cat for company would be accused and ducked in the village pond for putting the evil eye on the village cattle.<sup>292</sup>

However, behind the façade of prescribed calm, farmers knew that salmonella, BSE and residue and resistance problems would have to be tackled. With environmentalism and consumer power growing throughout Europe and trust in British

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<sup>284</sup> Cf. ‘Monitoring mastitis’, *FW* 104/10 (07.03.1986), p. 24; ‘£ 30 million bill for mastitis’, *FW* 107/19 (06.11.1987), p. 35.

<sup>285</sup> Jose MacDonald, ‘BST should not become end result’, *FW* 107/26 (25.12.1987), p. 5.

<sup>286</sup> ‘Drug Residues in Meat are at Absolute Rock-Bottom’, *FW* 104/21 (20.11.1987), p. 3.

<sup>287</sup> Ibid.

<sup>288</sup> Ibid.; cf. also: ‘Tests prove drug traces in meat are insignificant’, *FW* 107/21 (20.11.1987), p. 35.

<sup>289</sup> ‘No evidence for food scaremongers’, *FW* 107/26 (25.12.1987), p. 4; cf. also ‘The cost will be high...’, *FW* 107/24 (11.12.1987), p. 34.

<sup>290</sup> Alan Barker, ‘Don’t Panic Over BSE’, *FW* 107/18 (30.10.1987), p. 24.

<sup>291</sup> ‘BSE thrives on rumours’, *FW* 107/21 (20.11.1987), p. 7.

<sup>292</sup> Ibid.; cf. also KJ Ellis, ‘Diary item disgusts dairy man’, *FW* 107/24 (11.12.1987), p. 12; ‘BSE – 20 questions and 20 answers’, *ibid.*, p. 32.

food safety eroding, it was obvious that intensive agriculture would face major changes during the 1990s.

In this context, the 1992 MacSharry reforms provided a glimpse of things to come. Attempting to get a grip on CAP expenses and finally tackle overproduction, the MacSharry reforms marked the most significant modification of the CAP since its inception.<sup>293</sup> Instead of fostering overproduction with subsidised product prices, EC Agriculture Commissioner Ray MacSharry wanted to reduce intensification with direct subsidies linked to a farm's size and animals' age.<sup>294</sup> In order to lower overall subsidies, MacSharry relied on quotas and set-aside schemes and reduced intervention prices.<sup>295</sup> At the same time, the MacSharry reforms were designed to promote eco-friendly farming.<sup>296</sup> Amongst other things, EC agri-environment regulation 2078/92 provided payments to reduce farm pollution, encourage extensification and promote conservation efforts.<sup>297</sup> Introduced together with the Flora-Fauna-Habitat (FFH) guidelines in 1992, the MacSharry reforms firmly embedded environmentalist principles in EU agriculture.<sup>298</sup>

Initially seeing little more than cuts and wasted resources in the MacSharry reforms, British farmers only gradually warmed to them.<sup>299</sup> Indeed, for conventional farmers the 1990s seemed worse than the 1980s. With *British Farmer* describing 1990 as the "worst year for British agriculture for more than 50 years,"<sup>300</sup> domestic issues tended to overshadow EU reforms: following the salmonella-inspired 1990 Food Safety Act, British producers were exposed to an unprecedented scale of monitoring. Animals could now be inspected for forbidden substances on farms and farmers had to keep detailed records of animals' medication.<sup>301</sup> At the same time, BSE and salmonella slaughtering clauses placed enormous financial and emotional pressure on farmers to keep herds disease-free.

As a consequence, the agricultural media concentrated reporting on supportive measures for the British meat sector.<sup>302</sup> During the early 1990s, the NFU launched

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293 Cf. Martin, *The Development of Modern Agriculture. British Farming since 1931*, pp. 163-66.

294 Cf. Alois Seidl, *Deutsche Agrargeschichte* (Frankfurt a. M. : DLG Verlag, 2006), pp. 311-14.

295 Cf. Martin, *The Development of Modern Agriculture. British Farming since 1931*, p. 163.

296 Cf. Ibid., pp. 161-63.

297 Ibid., p. 181.

298 While British CAP membership continued, Britain's exit from the European Exchange Rate Mechanism (ERM) following 'Black Wednesday' in 1992 set farmers somewhat apart from their continental counterparts in terms of subsidies. A tendency which increased following the rapid progression of the EU's Economic and Monetary Union; cf. Ibid., pp. 164-66.

299 'A positive answer to MacSharry', *BF* 7/1 (Feb 1991), p. 5; Sean Rickard, 'Supply Management - the right way to right the CAP', *BF* 7/2 (Mar 1991), pp. 11-12; Peter Ross, 'Rest the land - but keep it for farming', *BF* 7/2 (Mar 1991), p. 6; JD Green, 'Surpluses waste our resources', *ibid.*

300 'Successes of a tough year', *BF* 7/2 (Mar 1991), p. 21.

301 Cf. 'On-farm mixers to be listed', *BF* 8/7 (August 1992), p. 20; 'Residues in Meat', *BF* 8/2 (Mar 1992), p. 20; 'New rules ban hormones', *BF* 7/7 (Oct 1991), p. 20; mixing rules were reformed with Veterinary Written Directions (VWD) in 1995; cf. 'New vet rules affect feed rations', *BF* 11/6 (Jul/ Aug 1995), p. 5.

302 Cf. Ibid.; cf. also 'Salmonella payouts', *BF* 7/1 (Feb 1991), pp. 18-19.



numerous food assurance campaigns.<sup>303</sup> Fearing increasing “consumer resistance”<sup>304</sup> to biotechnology and growth promoters, the union called for “risk-based controls”<sup>305</sup> and better labelling. Because of growing demand for welfare guarantees, the NFU council attempted to help conventional farmers increase animal welfare and maintain profitability.<sup>306</sup> Attempting to win consumers’ “hearts and minds,”<sup>307</sup> campaigns stressed both the superiority of British produce and farmers’ heroic history of “feeding a nation at war.”<sup>308</sup>

Signifying farmers’ increased self-reflectiveness, *British Farmer*’s “Candid Friend” regularly confronted farmers with their public image. In 1991, Caroline Waldegrave, wife of MP William Waldegrave, was “delighted by the consumer lobby that is presently in full swing.”<sup>309</sup> According to Waldegrave, she, “like many of her friends, [worried] about the welfare of animals.”<sup>310</sup> Indeed, farmers should focus on building direct relations with consumers because “the general public often does not trust information fed to it by sources that seem to be official.”<sup>311</sup> One month later, *Times* agricultural correspondent Michael Hornsby related his reporting-experiences amongst the agricultural community:

One thing that struck me at once was the extent to which farmers as a group often seem to live in a hermetically sealed, insulated world of their own. It was astonishing at the last [NFU Annual General Meeting] to hear farmers still complaining that supermarkets expected supplies to be delivered on time and accusing a leading food manufacturer of lack of patriotism because he had dared to buy meat from abroad.<sup>312</sup>

In October 1991, candid friend and Environmental Health Officer Nick Hibett criticised the sale of unfit animals to illegal slaughterers and complained that it was hard for him to “find acceptance among farmers, and even vets.”<sup>313</sup>

Confronted with a changed socio-political landscape, agricultural values themselves began to change. Ahead of the 1992 general elections, NFU president David Naish announced the launch of a new programme called *Farming for the environment*.<sup>314</sup>

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303□ Cf. ‘From the President: ‘Food from the Countryside’ , *BF* 7/9 (Dec 1991), p. 5; ‘Levy to boost meat sales’ , *BF* 11/3 (Apr 1995), p. 4.

304□ ‘Health and Wealth’ , *BF* 10/10 (Dec 1994/Jan 1995), p. 5.

305□ ‘NFU Policy’ , *BF* Ibid, p. 6; cf. also ‘The brave new world of biotechnology’ , *ibid*.

306□ ‘From the President: Caring for our animals’ , *BF* 7/8 (Nov 1991), p. 5; cf. also John Webster, ‘What is a ‘happy’ animal’ , *BF* 7/2 (Mar 1991), p. 31.

307□ ‘Winning hearts and minds’ , *BF* 11/5 (Jun 1995), p. 13.

308□ ‘Feeding a nation at war?’ , *BF* 11/5 (Jun 1995), p. 5.

309□ Caroline Waldegrave, ‘Love me, love my supermarket’ , *BF* 7/3 (April 1991), p. 31.

310□ *Ibid*.

311□ *Ibid*.

312□ Michael Hornsby, ‘A two-tier future’ , *BF* 7/4 (May 1991), p. 31.

313□ Nick Hibbett, ‘Meat rogues who shame us’ , *BF* 7/7 (Oct 1991), p. 25.

314□ David Naish, ‘Farming for the environment’ , 8/3 (Apr 1992), p. 5; cf. also Simon Daniels, ‘The right vision’ , *BF* 8/5 (June 1992), p. 6.

Although some commentators remained hostile towards “the greenies”<sup>315</sup> the agricultural media fostered environmentalism amongst farmers’ families. During the early 1990s, the ‘FarmLife’ -section in *Farmers Weekly* praised new ways of making children aware of their local environment.<sup>316</sup> With articles titled “Farming and Nature Living Side By Side”<sup>317</sup> the magazine covered topics such as “crafty ways of recycling waste,”<sup>318</sup> “arguments for permaculture”<sup>319</sup> and the “natural way to preserve food” without “additives or preservatives.”<sup>320</sup>

In spite of tensions regarding organic farmers’ criticism of conventional produce<sup>321</sup> and conventional producers’ attempts “to get on to the environmentally friendly bandwagon”<sup>322</sup> organic farmers were increasingly considered a normal part of the agricultural community. According to the president of the Royal Agricultural Society, Sir Derek Barber, “no one can possibly be against organic farming as such (...); they may well have a good case for further EC and UK support in order to be on equal terms with conventional husbandry systems.”<sup>323</sup> Attempting to support organic producers, EC regulation 2092/91 on organic food lead to establishment of the UK Register of Organic Food Standards.<sup>324</sup> Only products listed by the register could be called organic. In 1994, MAFF announced an “organic aid scheme.”<sup>325</sup>

Indeed, during the early 1990s, being able to label one’s produce as ‘organic’ increasingly counted as a sales-advantage. Once again, the issue of antibiotic-purity featured prominently. In 1991, *British Farmer* announced that there was a “growing niche for ‘green’ pigs’.”<sup>326</sup> According to the magazine, East Anglian processor Dalehead Foods was looking for “pigs from ‘welfare-conscious’ systems:”<sup>327</sup> pigs were to be raised on cereal-based feeds with “no antibiotic growth promoters or probiotics.”<sup>328</sup> The only exception were medicated “creep feeds”<sup>329</sup> for weaners. In 1989, Dalehead had signed up its first two “‘special contract’”<sup>330</sup> producers for ‘green pigs’ and was now planning to increase throughput to 700-1,000

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315□ R Barrow, ‘Forget the greenies’, *BF* 8/5 (June 1992), p. 6; cf. also TH Brown, ‘Overstated spray hazards’, *BF* *ibid.*; Marie Skinner, ‘It has to be expansion’, *BF* 8/1 (1992), p. 13.

316□ Tessa Gates, ‘Carving a niche in landscape’, *FW* 117/4 (24.07.1992), p. 18.

317□ ‘Farming and Nature Living Side by Side’, *FW* 117/6 (07.08.1992), pp. 66-67;

318□ ‘Crafty ways of recycling waste’, *FW* 117/6 (07.09.1992), *Farmlife* supplement, p. 7

319□ ‘Arguments for Permaculture’, *FW* 117/5 (31.07.1992), *Farmlife* supplement, p. 5.

320□ ‘Readers Offer’, *FW* 117/6 (07.09.1992), *Farmlife* supplement, p. 4.

321□ Cf. Sir Derek Barber, ‘Such organic claims are outrageous’, *FW* 117/4 (24.07.1992), p. 8.

322□ Richard & Gilly Mayall, ‘Time has come to stop ‘absurd’ arguing’, *FW* 117/6 (07.09.1992), p. 10.

323□ Sir Derek Barber, ‘Such organic claims are outrageous’, *FW* 117/4 (24.07.1992), p. 8.

324□ ‘New organic standards’, *BF* 8/4 (May 1992), p. 21.

325□ ‘The conversion factor’, *BF* 10/10 (Dec 1994/1995), p. 8.

326□ ‘A Growing Niche for ‘Green Pigs’’, *BF* 7/5 (Jun 1991), p. 13.

327□ *ibid.*

328□ *ibid.*

329□ *ibid.*

330□ *ibid.*

pigs per week. Delivering ‘green pig’ products to a “southern-based supermarket chain,” Dalehead offered suppliers a “generous premium.”<sup>331</sup> In the same issue, *British Farmer* printed an advertisement for Daisy Hill Feeds’ “Headstart Challenge.”<sup>332</sup> Targeting conventional farmers, the company claimed that its antibiotic-free feed was just as good or even better than conventional antibiotic feeds:

Please your customers and [get] ahead of any ministry or EC legislation, (...). Give the Headstart range of piglet diets a trial against your existing supplies - (...) once you have removed the fear factor of not using antibiotic growth promoters you will have the confidence to remove them from your other pig feed diets. In our opinion you will not be disappointed and you will be helping dislodge an area of criticism and concern levelled at the British Pig Industry.<sup>333</sup>

Boosting sales of ‘green pigs’, food safety issues continued to plague conventional farmers. While overall residue testing produced good results in 1992, VMD director Dr Michael Rutter claimed to have “lots of information about the illegal use of [stress-reducing] beta antagonists.”<sup>334</sup> Three years later, statistics released ahead of the National Food Safety Week revealed that 42% of UK-sold frozen chicken and 37% of fresh chicken were contaminated with salmonella.<sup>335</sup> According to *British Farmer*, “Salmonella is present in 60,000 eggs sold each year. New strains of salmonella, bovine in origin, are merging with resistance to antibiotics.”<sup>336</sup> In terms of BSE, Andrew Gordon claimed that “a billion pounds [had been] wiped off the value of the nation’s cattle”<sup>337</sup> and 70,000 cows culled between 1990 and 1992 following the BSE-related death of a Bristol cat. However, Gordon remained optimistic that the “crescendo” of “unjustified public anxiety”<sup>338</sup> would ebb. In 1995, *British Farmer* proudly announced that the “number of confirmed BSE cases has declined from a peak of nearly 37,000 in 1992 to just over 23,000 in 1994.”<sup>339</sup>

As already shown, hopes for a recovery from the BSE-crisis were dashed by the announcement of a possible link between BSE and vCJD on March 20<sup>th</sup> 1996. One day later, several EU countries issued unilateral bans on British beef and refused to lift them in spite of immediate diplomatic action by the British government. On March 22<sup>nd</sup>, the Consumer Association recommended removing beef from personal diets. At this point, some voices began calling for a complete cull of the national cattle herd.<sup>340</sup> Whereas domestic beef consumption fell by 50% in the first week after the announcement, it

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331<sup>□</sup>*Ibid.*

332<sup>□</sup> ‘The Headstart Challenge’, *BF* 7/5 (Jun 1991), p. 12.

333<sup>□</sup>*Ibid.*

334<sup>□</sup> ‘UK livestock men cleared of using illegal growth drugs’, *FW* 117/5 (31.07.1992), p. 14.

335<sup>□</sup> ‘Food Safety - action by farmers and growers’, *BF* 11/8 (Oct 1995), p. 9.

336<sup>□</sup>*Ibid.*

337<sup>□</sup> Andrew Gordon, ‘It must have been staggers’, *BF* 8/7 (Aug 1992), p. 13.

338<sup>□</sup>*Ibid.*; cf. also ‘BSE controls in Britain are effective, says report’, *FW* 117/5 (31.07.1992), p. 19.

339<sup>□</sup> ‘BSE cases decline’, *BF* 8/7 (Mar 1995), p. 4.

340<sup>□</sup> ‘Consumer confidence’, *BF* 12/4 (April 1996), pp. 12-13; ‘How the beef industry was plunged into crisis’, *FW* 124/13 (29.03.-04.04.1996), p. 14.

recovered to 25% below average in the second week. Meanwhile, the loss of export markets resulted in a further 30% drop of sales.<sup>341</sup>

In the agricultural media, reactions ranged from shock and insecurity to anti-European outrage.<sup>342</sup> In *British Farmer*, NFU president Sir David Naish assured farmers that he was “deeply aware of the immense uncertainties and anxieties facing you and your families.”<sup>343</sup> According to Naish, “the NFU [would] not rest in its efforts to restore our customers’ confidence in our product.”<sup>344</sup> Contradicting European demands, Naish announced that culling would “cause everlasting damage to the UK and its dairy and beef industries.”<sup>345</sup> According to the NFU, the Europeans were demanding stricter inspections and detailed plans to destroy 4,680,000 cows – this could mean having to cull 15,000 cows per week.<sup>346</sup> Responding to the government’s announcement on March 20<sup>th</sup>, *Farmers Weekly* defiantly announced: “No real proof. No real evidence. Just *maybe* [sic].”<sup>347</sup> With BSE triggering the “blackest day at mart since [the] ‘60s,”<sup>348</sup> another article announced that the “pilloried’ industry” had a “right to feel hurt.”<sup>349</sup> Warning that Britain did not have enough incinerators to cope with the proposed cull,<sup>350</sup> agricultural magazines began advertising psychological and suicide-emergency helplines for struggling farmers.<sup>351</sup>

Writing to agricultural magazines, ordinary farmers were both angry and self-critical. According to John Pidsley from Cheshire, “media hysteria” was leading to the unnecessary “wholesale slaughter of complete herds.”<sup>352</sup> In the opinion of a “worried farmer from Gloucestershire,” “feed-makers” were “the real villains:”

They included the meat and bone meal in the rations. We did not ask for it. Now they must pay for the damage suffered. (...). Just like the oil disasters,

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341□ Philip Clarke, ‘Supermarket price cuts tempt back beef buyers’, *FW* 124/14 (05.04.-11.04.1996), p. 21; cf. also ‘Cattle markets busier’, *ibid.*; ‘Three auctions are shut by BSE crisis’, *ibid.*, p. 26.

342□ Cf. GD More, ‘Buy British for healthy cattle’, *FW* 126/13 (28.03.-03.04.1997), p. 101; GR Owens, ‘British meat needs a logo’, *ibid.*; Michael and Janet Rowe, ‘No to German beef imports’, *ibid.*; Tony McDougal, ‘How will EC rendering rules affect farm feeds’, *ibid.*, p. 19; ‘Netherlands confirms its first BSE’, *ibid.*, p. 8; Peter Fane, ‘Britain battles with BSE problems’, *BF* 12/4 (Apr 1996), p. 4; ‘The price of lifting UK beef ban’, *ibid.*

343□ David Naish, ‘Letter to Readers’, *BF* 12/4 (April 1996), p. 3.

344□ *ibid.*

345□ *ibid.*; cf. also ‘Sticking to the science’, *ibid.*, p. 4.

346□ ‘The price of lifting UK beef ban’, *BF* 12/4 (Apr 1996), p. 4.

347□ ‘BSE Crisis: State Must Act Now To Repair The Damage’, *FW* 124/13 (29.03.-04.04.1996), p. 5; cf. also Rebecca Austin, ‘Still no scientific proof of transmission to man’, *FW* 124/13 (29.03.-04.04.1996), p. 40; BSE Crisis: State Must Act Now To Repair The Damage’, *FW* 124/13 (29.03.-04.04.1996), p. 5.

348□ ‘Blackest day at mart since ‘60s’, *FW* *ibid.*, p. 8.

349□ ‘Pilloried’ industry has right to feel hurt’, *FW* *ibid.*, p. 21.

350□ Cf. ‘UK incinerators cannot cope’, *FW* 124/14 (05.04.-11.04.1996), p. 8.

351□ Cf. ‘Suicide fear grows’, *FW* 124/13 (29.03.-04.04.1996), p. 10; Richard Kerkham, ‘Sharing adversity’, *BF* 12/5 (Jun 1996), p. 30.

352□ John Pidsley, ‘Total slaughter is unnecessary’, *FW* 124/14 (05.04.-11.04.1996), p. 84; cf. also Kendall Dooston, ‘Beef: Weasel words panic the public’, *ibid.*; JE Small, ‘Give the public the facts’, *ibid.*; Jonathan King Brown, ‘Government wholly to blame’, *ibid.*

Baring Bank, lead in feed and thalidomide, the firms involved should be made to pay the price and suffer the consequences.<sup>353</sup>

According to Anthony Carter from West Sussex, “BSE must teach us all that current perceptions of safe are wrong.”<sup>354</sup> Instead of relying on technological artifice, farmers should accept that “nature works very well on its own.”<sup>355</sup> Following developments closely, John Newman predicted that BSE would boost sales of ‘safe’ and traceable organic products.<sup>356</sup>

With consumers exercising their power by turning away from British beef, critical voices within agriculture were strengthened and a window for inner-agricultural reforms opened. Indeed, farmers’ changed demeanour is best exemplified by their reaction to the EU’s 1997 ban of avoparcin. Up to 1997, the popular antibiotic growth-promoter had been used by ca. 80% of British poultry producers and ca. 30% of pig and cattle producers.<sup>357</sup> However, instead of criticising the ban, *Farmers Weekly* limited itself to preparing farmers for losing access to avoparcin. According to, Doctor Leif Goransson of the Swedish Pig Centre, Swedish farmers had been able to overcome antibiotic growth promotion by providing better diets, improving hygiene and employing so-called all-in, all-out housing.<sup>358</sup> Taking up the Swedish message, *Farmers Weekly* claimed that “effective stockmanship halves vet costs.”<sup>359</sup>

However, farmers’ post-BSE penitence was soon placed under a severe strain. Following the 1997 elections and European calls for further antibiotic bans, the farming media saw a marked rise of articles addressing the implications of potential bans: sensing major reforms, industry representatives attempted to whip up support for agricultural antibiotics amongst farmers. Representing the interests of animal health firms, the National Organisation for Animal Health (NOAH) published extensively in magazines like *Farmers Weekly*. According to NOAH’s director Roger Cook, recent calls for antibiotic bans were clearly “confused over the facts behind farming’s role in foodborne disease, antibiotic resistance and growth promoters.”<sup>360</sup> Instead of facilitating lax farm hygiene and producing resistant organisms, Cook claimed that agricultural “antibiotics [were] a major factor in reducing salmonella”<sup>361</sup> and increased

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353□ Worried farmer from Gloucestershire, ‘Feed-makers the real villains’, *ibid.*

354□ Anthony Carter, ‘Don’t tamper with nature’, *ibid.*, p. 87.

355□ *Ibid.*; cf. also A Durston, ‘Experts guilty in first place’, *ibid.*, p. 88.

356□ Cf. ‘Setting standards’, *BF* 12/4 (Apr 1996), p. 15.

357□ ‘Avoparcin feed ban’, *FW* 126/2 (10.01.-16.01.1997), p. 34.

358□ Cf. Jessica Buss, ‘Balanced Big diets overcome effects of Swedes’ GP ban’, *FW* 126/2 (10.01.-16.01.-1997), p. 34; cf. also ‘In-Feed Antibiotics’, *ibid.*

359□ ‘Effective stockmanship halves vet costs’, *FW* 126/13 (28.03.-03.04.1997), p. 44; cf. also ‘How to improve without incurring drug bills’, *ibid.*

360□ Jonathan Riley, ‘Leaders Reject Consumer Attack On Intensive Area’, *FW* (13.03.1998), p. 7 - starting in 1998, I am using *Farmers Weekly*’s digital archives, which no longer list an article’s volume and issue number.

361□ Jonathan Riley, ‘NOAH Rounds on Sweden’, *FW* (19.06.1998), p. 14.

food safety. According to Cook, £1 spent on antibiotic growth promotion saved farmers £6 of feed costs.<sup>362</sup>

Demanding that “all sides of the argument” should be “represented accurately” at EU meetings,<sup>363</sup> NOAH also mobilised influential counter-expertise. During a NOAH press briefing, ex BVA-president Prof Karl Linklater reiterated well-known industry claims: agricultural antibiotics brought “significant economic benefits”, made “enormous contributions to animal welfare” and had been “used in agricultural production for 40 years without difficulty.”<sup>364</sup>

Meanwhile, industry-representatives attempted to drive a wedge between farmers and antibiotic critics. According to NOAH chairman Bill Hird, Scandinavian lobbyists were trying to impose antibiotic bans on other EU countries in order to maintain “their own high cost agricultural production.”<sup>365</sup> Attacking the Soil Association, NOAH director Cook used identical arguments:

It is important to remember that the Soil Association represents organic farmers who, for years, have sought to justify the high prices they demand for their products by criticising the produce of conventional British farmers. They have a vested interest in maintaining public anxiety about British food.<sup>366</sup>

At the European level, Ghislain Follet, president of the Federation of Animal Health (FEDESA), presented an “independent survey”<sup>367</sup> showing that growth promoters only accounted for 15% of antibiotic-use, whereas physicians used 52% of antibiotics. Copying NOAH’s strategy, Follet claimed that the numbers proved that powerful medical interests were wrongfully attacking agricultural antibiotic-use.<sup>368</sup>

Attempting to prevent state intervention, both the NFU and the Meat and Livestock Commission (MLC) also claimed that there was no evidence justifying bans.<sup>369</sup> According to NFU animal health advisor Peter Rudman, “we should have access to antibiotics, so long as they are used responsibly.”<sup>370</sup> Comparing antibiotic fears to “the hysteria that surrounded BSE,” Grenville Welsh from the British Pig Association (BPA) called on “both industry and retailers” to “work together to educate the consumer.”<sup>371</sup>

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362□Philip Clarke, ‘Antibiotic Use As Growth Promoters Set To Be Banned’, *FW* (20.11.1998), p. 8.

363□Jonathan Riley, ‘NOAH Rounds on Sweden’, *FW* (19.06.1998), p. 14.

364□*Ibid.*; cf. also Emma Penny, ‘Industry Calls For More Research Into Resistance’, *FW* (01.05.1998), p. 42.

365□Jonathan Riley, ‘NOAH Rounds on Sweden’, *FW* (19.06.1998), p. 14.

366□Shelley Wright, ‘MAFF’s Antibiotic ‘Smokescreen’’, *FW* (31.07.1998), p. 13.

367□Philip Clarke, ‘FEDSA Refutes Antibiotic Claim’, *FW* (11.09.1998), p. 10.

368□Cf. Philip Clarke, ‘Antibiotics For Growth Attack’, *FW* (18.09.1998), p. 14.

369□Cf. Jonathan Riley, ‘Leaders Reject Consumer Attack On Intensive Area’, *FW* (13.03.1998), p. 7; Catherine Hughes, ‘Ban Antibiotics As GPs, Urges MPs’ Committee’, *FW* (01.05.1998), p. 6.

370□Philip Clarke, ‘Antibiotic Use As Growth Promoters Set To Be Banned’, *FW* (20.11.1998), p. 8.

371□Simon Wragg, ‘Industry Says Yes To Use Of Antibiotics For Growth’, *FW* (22.05.1998), p. 42.

Siding with NOAH rhetoric, the NFU did not mention that the United Kingdom Agricultural Supply Trade Association (UKASTA) did not oppose antibiotic bans. In contrast to NOAH, UKASTA's director Jim Reed announced that "it was time for the industry to find out exactly what the consumer wanted. And if that meant a ban on certain in-feed antibiotics then so be it."<sup>372</sup> Clearly contradicting articles titled "Industry Says Yes To Use Of Antibiotics For Growth",<sup>373</sup> the UKASTA statement shows that positions within the system of conventional agriculture were far more divergent than NFU and NOAH-protest suggested.

In agricultural magazines, experts and farmers discussed whether British agriculture might actually profit from banning growth-promoters in the long-term.<sup>374</sup> Judging bans likely, magazines like *Farmers Weekly* began promoting homeopathic and probiotic alternatives as well as improved husbandry systems.<sup>375</sup> With supermarkets like Waitrose and Tesco demanding pigs produced without antibiotic growth promoters,<sup>376</sup> particular attention was paid to international pioneers of antibiotic-free husbandry.<sup>377</sup> However, discussions about growth promoter bans did not carry over to therapeutic antibiotics and articles continued to recommend generous regimes of therapeutic antibiotics for infected animals and herds.<sup>378</sup>

Despite sharing general concern about antibiotic overuse and resistance, most commentators did not aim to convert conventional farmers to organic agriculture. Wedged between hardliners like NOAH and organic producers, the overwhelming majority of conventional farmers attempted to negotiate a 'Third Way' by reducing antibiotic use while maintaining intensive production systems.

Despite rebranding antibiotic growth promotion as environmentally friendly "digestive enhancers,"<sup>379</sup> the pharmaceutical industry was unable to prevent the

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<sup>372</sup> Ibid.

<sup>373</sup> "Industry Says Yes To Use Of Antibiotics For Growth", *FW* (22.03.1998), p. 42.

<sup>374</sup> Cf. Emma Penny, 'Antibiotic Ban A Poultry Headache', *FW* (22.05.1998), p. 44; Mike Stones, 'Talking Point', *FW* (29.05.1998), p. 83; cf. also Stuart Pattison, 'Tell truth about beef imports?', *FW* (23.10.1998), p. 83.

<sup>375</sup> Cf. Jeremy Hunt, 'Homeopathy Lends A Hand At Birth Time', *FW* (23.01.1998), p. 53; cf. also, Jessica Buss, 'Turn Around Those Scouring Lambs', *FW* (02.01.1998), p. 36; cf. 'Pack Lunches For Nursery Piglets', *FW* (13.03.1998), p. 56; 'Wet Feed PH Check May Lift Gastric Health', *FW* (27.03.1998), p. 43; Jessica Buss, 'Patchy Clover Needs Recede', *FW* (10.04.1998), p. 48; Emma Penny, 'Teatsealscan Target Disease', *FW* (22.05.1998), p. 16; Jessica Buss, 'You've Already Missed The Boat If You Have To Cull For Lameness', *FW* (13.02.1998), p. 12; Tony Blackburn, 'No Hiccup in HACCP Found At College', *FW* (03.07.1998), p. 14; Jessica Buss, 'Set Fair & Nine Months To Go', *FW* (13.11.1998), p. 44.

<sup>376</sup> Cf. Victor Robertson, 'Linked Contract to Aid Pig Producers', *FW* (03.07.1998), p. 24; Emma Penny, 'Waitrose In Discussion With Suppliers', *FW* (08.05.1998), p. 42; Emma Penny, 'Antibiotic Policies Under Review After Lords' Report', *FW* (08.05.1998), p. 42.

<sup>377</sup> Cf. Simon Wragg, 'Rare Breed Revival', *FW* (05.06.1998), p. 50; Simon Wragg, 'Conversion Is Now Name Of The Game', *FW* (04.09.1998), p. 47; Emma Penny, 'Pre-Emptying Antibiotic Cut', *FW* (18.09.1998), p. 14.

<sup>378</sup> Cf. Emma Penny, 'Beware Virulent Foot-Rot, Flockmasters Are Warned', *FW* (06.02.1998), p. 40; Jessica Buss, 'Summer Mastitis', *FW* (14.08.1998), p. 37; John Alpe, 'John Alpe', *FW* (06.03.1998), p. 2.

<sup>379</sup> Jonathan Riley, 'Antibiotic Restrictions Are Urged', *FW* (11.12.1998), p. 6; cf. the industry's sustained anti-ban campaign: Simon Wragg, 'Antibiotics Curb on Cards', *FW* (18.09.1998), p. 40.

EU's ban of virginiamycin, tylosin, zinc bacitracin and spiramycin feeds in December 1998. Together, these substances accounted for ca. 80% of antibiotic growth promoters used in European pig and poultry rations.<sup>380</sup> While Pfizer and Alpharma announced that they would challenge the bans in front of the European Court of Justice,<sup>381</sup> NOAH had failed to rally farmers. There was no agricultural storm of outrage.

Following the announcement of the 1998 bans, both the MAFF and the MLC announced trials of alternative growth promoters.<sup>382</sup> While *Farmers Weekly* warned that there was no single alternative to antibiotic growth promotion,<sup>383</sup> nutritionist Martin Owers estimated that banning antibiotic feeds would cost between 50 pence and £1 per pig: "we hope to claw at least half of that back."<sup>384</sup> More radically, Jasper Renold, the pig unit manager on Easton Lodge Farm – the experimental farm owned by *Farmers Weekly* –, began questioning the entire economic reasoning behind antibiotic growth promotion:

I think we see them as necessary to safeguard performance, particularly in weaners. But if you were to ask me how much benefit they give, I couldn't tell you. (...). I think we're continuing to use them because they're seen as a relatively cheap form of insurance.<sup>385</sup>

Not only did Renold's statement contradict NOAH and NFU claims, it also reveals how credulous experts at the very heart of the conventional knowledge distribution had been regarding industry efficacy claims. While *Farmers Weekly* began retesting growth promoters' economic value, Easton Lodge's veterinarian Richard Potter claimed that he "wouldn't be at all surprised if there was no dip in grower performance following AGP removal, given the right management and hygiene."<sup>386</sup> According to Potter, only weaner performance would be affected by removing antibiotic feeds.

Even though some farmers and the pharmaceutical industry remained opposed to the 1998 bans,<sup>387</sup> most observers acknowledged that the end of easy agricultural antibiotic-access was nearing.<sup>388</sup> Speaking to *Farmers Weekly* during the 1999 Pig and Poultry Fair at Stoneleigh, Tesco's agricultural manager Chris Ling announced that

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380 Philip Clarke, 'Antibiotic Use As Growth Promoters Set To Be Banned', *FW* (20.11.1998), p. 8; Philip Clarke, 'Four Antibiotics Seem Set To Be Banned Soon', *FW* (04.12.1998), p. 8; Philip Clarke, 'Trade War Looms As EU Bans Growth Antibiotics', *FW* (25.12.1998), p. 8; Philip Clarke, 'Austria Presidency Ends With Whimper After Little Progress', *FW* (11.12.1998), p. 13.

381 Cf. Philip Clarke, 'EU Scientists Push For End Of AGP Use', *FW* (04.06.1999), p. 8.

382 Cf. Simon Wragg, 'Go-Ahead For Work On Fermented Feed', *FW* (25.12.1998), p. 27; James Garner, 'MLC To Spell Out Advice On AGP Replacements', *FW* (23.04.1999), p. 39.

383 Cf. Sue Rider, 'Don't Look For One Alternative. AGPs', *FW* (21.05.1999), p. 52.

384 Ibid.

385 Simon Wragg, 'Questioning The Need For AGPs Warning About Weaners', *FW* (05.02.1999), p. 38; cf. also the allegations made by Hertfordshire pig farmer Bill Barr in the same article.

386 Ibid.

387 Cf. Teddy Maufe, 'Farmerfocus', *FW* (25.06.1999), p. 66; Philip Clarke, 'EU's Antibiotic Ruling Remains', *FW* (09.07.1999), p. 12; Philip Clarke, 'EU Scientists Push For End Of AGP Use', *FW* (04.06.1999), p. 8.

388 Cf. Jonathon [sic] Riley, 'Action on Antibiotics Expected', *FW* (28.05.1998), p. 7; Philip Clarke, 'EU Scientists Push For End Of AGP Use', *FW* (04.06.1999), p. 8;



“it’ s no longer a question of if there’ s a total ban on use of AGP’ s for pig production but when.” <sup>389</sup> Although antibiotic growth promotion was still legal, Tesco encouraged suppliers to “remove prophylactic use of AGPs” , “the quicker the better.” <sup>390</sup> For pig consultant Vernon Fowler, it was “prudent to assume that only prescription antibiotics will be permitted in the long-run.” <sup>391</sup>

Fowler’ s prudent guess came true: in April 2002, the EU Commission proposed phasing out the remaining antibiotic growth promoters monensin sodium, salinomycin, avilamycin and flavophospholipol.<sup>392</sup> Weakened by the European Court’ s confirmation of existing bans in September 2002,<sup>393</sup> pharmaceutical companies – now organised in the Responsible Use of Medicines in Agriculture Alliance (RUMA) – continued their opposition.<sup>394</sup> However, in 2003, the EU Agriculture Ministers confirmed the phasing out of the last growth promoters by January 1<sup>st</sup> 2006 with regulation 1831/2003/EC.<sup>395</sup>

With growth promoters’ fate sealed, public discussions shifted to the agricultural use of therapeutic antibiotics. However, conventional farmers were very reluctant to address this issue and the agricultural press only printed a few articles on therapeutic antibiotic-use during the early 2000s.<sup>396</sup> In 2003, the Soil Association accused conventional farmers of substituting growth promoters with therapeutic antibiotics – thereby making a “mockery of the ban.” <sup>397</sup> One year later, an article in *Farmers Weekly* allowed a brief glimpse into the reality of therapeutic antibiotic-use on farms. Writing with the commendable goal of reducing antibiotic-use, veterinarian Sam Leadley addressed common mistakes in an amusing manner:

Pickup-itis

When after purchase, antibiotic remains in the pickup and was never given to the sick animals.

Too-much-water-itis

Directions for reconstituting a powder were not followed – allowing treatment of three calves instead of two. But each injection then carries too little active drug to do the job.

<sup>389</sup>□ Emma Penny and Sue Rider, ‘Don’ t Look for One Alternative AGPs’ , *FW* (21.05.1999), p. 52.

<sup>390</sup>□ Ibid.

<sup>391</sup>□ Ibid.

<sup>392</sup>□ Hannah Velten, ‘GP Ban Could Cost Dear’ , *FW* (05.04.2002), p. 43.

<sup>393</sup>□ Philip Clarke, ‘Euro Briefs’ , *FW* (13.09.2002), p. 8.

<sup>394</sup>□ Cf. Ibid.

<sup>395</sup>□ ‘Ban on antibiotics as growth promoters in animal feed enters into effect’ , *EU Press releases database* (2006) [[http://europa.eu/rapid/press-release\\_IP-05-1687\\_en.htm](http://europa.eu/rapid/press-release_IP-05-1687_en.htm), accessed 02.10.2013].

<sup>396</sup>□ Cf. Hannah Velten, ‘Antimicrobial Sales Rise Seen As A Warning’ , *FW* (15.03.2002), p. 39; Richard Allison, ‘Using Antibiotics For The Routine Treatment Of Mastitis In Cows Does Not Lead To Increases In Antibiotic Resistance, According To US Research’ , *FW* (10.10.2003), p. 2; ‘Growing threat of antibiotic resistance’ , *FW* (11.-17.02.2005), p. 31.

<sup>397</sup>□ Jonathan Long, ‘Loophole In Law Makes Mockery Of Ban On AGPs’ , *FW* (05.09.2003), p. 36; cf. also Isabel Davis, ‘Farm Animal Antibiotic Sales Down’ , *FW* (18.04.2003), p. 9.

Store-the-syringe-in-the bottle-itis

You always need a needle handy, so just stab the contaminated needle back into the bottle. (...).

Under-dosing-itis (...).

Windowsill-itis

Exposure to strong sunlight and heat destroyed much of the antibiotic's potency when it was left on the barn windowsill.

Quit-treating-too-soon-itis

Recommended treatment was for five days, but after three days she is 'looking better', so it is tempting to stop giving the drugs. However, all antibiotics depend on a minimum length of contact with the pathogen. Then, it has to be sustained long enough to allow the animal's immune system to kill off the remaining pathogens.<sup>398</sup>

Other 'itis'-types included "one-drug-fits-all-itis" and "virus-itis",<sup>399</sup> which meant squandering antibiotics against virus infections. Occurring frequently enough to be addressed in a comic poem, the described practices were the logical consequence of a system, which entrusted therapeutic substances to lay-practitioners, whose economic interests did not necessarily align with those of public health.

Meanwhile, pharmaceutical companies did their best to promote sales of therapeutic antibiotics. In 2001, Schering-Plough sponsored a prize quiz on calf pneumonia in *Farmers Weekly*. Winners were awarded £1250 worth of weighing equipment.<sup>400</sup> In its three 'quiz' articles, Schering-Plough stressed that farmers should treat calf pneumonia early and "trust an antibiotic that is effective against all three main pneumonia-causing bacteria."<sup>401</sup> Fortunately, Schering-Plough's Nuflor was just such a "proven first-line antibiotic for pneumonia", "effective against all major bacterial causes of pneumonia," with "no recorded resistance"<sup>402</sup> and "now available in extra-value 250ml bottles."<sup>403</sup> Winners of the prize weighing-kit could use it to "monitor how well cattle recover after treatment with Nuflor."<sup>404</sup> In 2005, Pfizer printed a commercial called "creatures of habit",<sup>405</sup> which claimed that "old favourites"<sup>406</sup> such as Pfizer's cephalosporin antibiotic Excenel<sup>™</sup>RTU were still more

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<sup>398</sup> Eadley, Sam, 'Understanding why antibiotics fail', *FW* (24.-30.12.2004), *Livestock*, p. 27.

<sup>399</sup> *Ibid.*

<sup>400</sup> Cf. 'Your Pneumonia Know-How Could Win Weighing Kit', *FW* (16.11.2001), p. 44.

<sup>401</sup> *Ibid.*

<sup>402</sup> *Ibid.*

<sup>403</sup> 'Your Pneumonia Know-How Could Win Weighing Kit', *FW* (23.11.2001), p. 38; cf. also, 'Your Pneumonia Know-How Could Win Weighing Kit', *FW* (30.11.2001), p. 43.

<sup>404</sup> 'Your Pneumonia Know-How Could Win Weighing Kit', *FW* (30.11.2001), p. 43; in 2006, *Farmers Weekly* informed farmers that Nuflor could now be used prophylactically to prevent pneumonia; cf. Jonathan Long, 'Prevent pneumonia', *FW* (12.05.2006), p. 43.

<sup>405</sup> 'Commercial Pfizer: Excenel', *FW* (24-30.06.2005), p. 47.

<sup>406</sup> *Ibid.*

effective than other medications. Promising more “cow treatments in each bottle,” Pifzer announced: “If you would like to put Excenel RTU to the test, please ask your vet and let them know what results you get.”<sup>407</sup> In the same year, pharmaceutical companies also sponsored “*Farmers Weekly Academy*,”<sup>408</sup> a feature ‘educating’ farmers about treatments against mastitis, metritis and other conditions – antibiotics produced by the sponsor were conveniently mentioned below the article.<sup>409</sup>

As has become clear, the 2006 ban of subtherapeutic growth promoters neither restricted intensive farmers’ antibiotic-access nor reduced their antibiotic-dependency. With potent antibiotics only a veterinary prescription away, breaking this addiction remains tough.

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407□Ibid.

408□Andrew Bradley, ‘Farmers Weekly Academy: Learning For Your Farming Future’, *FW* (16.09.2005), pp. 52-53.

409□Cf. Ibid.

## The State

Historically, the British state has been remarkably unwilling to extend regulatory measures from farmers to veterinarians. This tendency was already present during the implementation of the Swann reforms.

In 1969, public pressure and an upcoming election had made Cledwyn Hughes, Labour Minister of Agriculture, quickly commit to the Swann report's implementation. However, three weeks ahead of the 1970 general elections, a minute suddenly announced that the decision to ban tetracycline and penicillin feeds by July 1<sup>st</sup> was "off."<sup>410</sup>

Adhering to corporatist traditions, ministry officials had spent the past months negotiating the July-deadline with all interested parties. However, behind closed doors, opposition to the bans continued.<sup>411</sup> Referring "to increased costs to livestock producers," the NFU insisted on the "need to use antibiotics for 'stress.'" <sup>412</sup> While officials blocked this legal detour to therapeutic antibiotics, pharmaceutical representatives claimed that the Swann bans were scientifically unsound. Writing to Parliamentary Secretary John Mackie in May 1970, Cyanamid International President Ernest G. Hesse warned that Britain had taken on a "heavy responsibility in introducing legislative controls."<sup>413</sup> Having "pioneered the concept of antibiotics in animal husbandry," <sup>414</sup> Cyanamid continued to consider resulting resistance insignificant. With agricultural interests representing "less than 20% of the Company's turnover," <sup>415</sup> Hesse claimed that Cyanamid would have abandoned feed sales immediately if they endangered human medications' efficacy.

In addition to sending politely worded threats, Cyanamid also decided to generate public pressure against Swann. Amongst other things, the company sponsored a symposium at the Royal Society for Medicine in early 1970 and flew in two experts. Trusted by Cyanamid, Thomas Jukes and Robert White-Stevens were no dark horses. Instead, both scientists were bio-chemical "merchants of doubt."<sup>416</sup> Focussing on cold-war physicists, Naomi Oreskes and Michael Conway have shown how some scientists leant their reputation to industry campaigns against everything from tobacco to CO<sub>2</sub> regulation.<sup>417</sup> Purporting Malthusian scenarios, Jukes and White-Stevens performed

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<sup>410</sup> TNA MAF 416/67 (Minute, E Doling to Mr Cruickshank, 28 May, 1970).

<sup>411</sup> Cf. TNA MAF 416/67 (Submission to Minister, Swann Report - Current Position and Further Action, Appendix III: Consultations About Withdrawal Date For Penicillin And The Tetracyclines, 13 Jul, 1970), p. 1.

<sup>412</sup> Ibid., p. 2.

<sup>413</sup> TNA MAF 416/67 (Ernest G. Hesse to John Mackie, 20 May, 1970), p. 1.

<sup>414</sup> Ibid.

<sup>415</sup> Ibid.

<sup>416</sup> Naomi Oreskes and Erik M. Conway, *Merchants of Doubt. How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (New York et al.: Bloomsbury Press, 2010).

<sup>417</sup> Ibid., pp. 5-8; 240-65.

an identical role and campaigned against any perceived threat to the agricultural technologies safeguarding Western abundance.<sup>418</sup>

During the early 1960s, the two ex-Cyanamid employees had already cut their teeth attacking Rachel Carson. A professor of environmental science at Rutgers University and former assistant director of Cyanamid's Agricultural Research Division, Robert White-Stevens launched particularly vicious televised attacks in April 1963. Accusing Carson of being "a fanatic defender of the cult of the balance of nature," the lab-coat wearing White-Stevens described *Silent Spring* as a "gross distortion of the actual facts."<sup>419</sup> No expert on the subject, Thomas Jukes had similarly distinguished himself as an outspoken critic of the anti-DDT campaign.<sup>420</sup> Having co-discovered the antibiotic-growth effect in Cyanamid's Lederle Laboratories, Jukes now worked at Berkeley's Medical Physics Space Sciences Laboratory<sup>421</sup> and was described in an obituary as "an outspoken polemicist."<sup>422</sup> According to *Nature*-editor John Maddox, Jukes

... had a passionate distaste for cant and, more important, a natural instinct for the effective conduct of a controversy. Excessive politeness, or even bare courtesy, towards opponents might often itself seem like cant.<sup>423</sup>

Following Cyanamid's 1970 symposium, the company distributed summaries of both scientists' statements to the press. Claiming to speak for large parts of "the scientific community in the United States and Britain," "British-born" White-Stevens attacked:

... this recent tendency among senior political and administrative people, who at the merest suggestion that some hazard might possibly exist, jump to their controls and issue restrictive edicts.<sup>424</sup>

According to Stevens, the Swann report manifested a "tendency to provoke pessimism over scientific progress by refusing to recognise its vast contributions, instead 'loudly bewailing the usually quite insignificant side-effects of technology.'" <sup>425</sup> Convinced that "scientific agriculture must 'hold a finger in the dike' against starvation," <sup>426</sup>

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418<sup>□</sup>In this, they followed the logic of the American-led propagation of the Green Revolution against Communism; cf. Nick Cullather, *The Hungry World. America's Cold War Battle against Poverty in Asia* (Cambridge (Ma.) and London: Harvard University Press, 2010), Ruxin, 'The United Nations Protein Advisory Group'.

419<sup>□</sup>Qtd. in Garry Kroll, 'The 'Silent Springs' of Rachel Carson: Mass Media and the Origins of Modern Environmentalism', *Public Understanding of Science* 10 (2001), pp. 414-15.

420<sup>□</sup>Cf. Thomas H. Jukes, 'Food Additives', *Science*, 134/3482 (1961), Thomas H. Jukes, 'The Right to Be Heard', *BioScience*, 18/4 (1968), Thomas H. Jukes, 'Ddt Affluent Enemy or Beneficial Friend', *BioScience*, 19/7 (1969), Thomas H. Jukes, 'Jukes in Defense of Borlaug', *BioScience*, 22/11 (1972).

421<sup>□</sup>Cf. John Maddox, 'Obituary. Thomas Hughes Jukes (1906-1999)', *Nature*, 402/6761 (1999).

422<sup>□</sup>James F. Crow, 'Thomas H. Jukes (1906-1999)', *Genetics*, 154 (2000), pp. 955-56.

423<sup>□</sup>Maddox, 'Obituary. Thomas Hughes Jukes (1906-1999)'.

424<sup>□</sup>TNA MAF 284/283 (Press Information. Cyanamid of Great Britain Limited, 'Scientists Deplore 'Instant Decision' By Governments', 20 Jan, 1970), p. 1.

425<sup>□</sup>bid.

426<sup>□</sup>bid.

White-Stevens urged authorities to “maintain meat production at its highest level.”<sup>427</sup> In a similar vein, Thomas Jukes “flatly rejected” Swann: “I see no reason whatever for discontinuing the unprescribed use of tetracyclines and penicillin in animal feeds.”<sup>428</sup> Referring to “an exploding human population” and the “dire need for the most efficient use of feedstuffs,” Jukes claimed that the Swann report was not based on “facts” :

- 1) Antibiotics have retained their effectiveness for the production of growth of farm animals after continuous use for nearly 18 years’ .
- 2) There is no evidence that the use of antibiotics in animal feeds has led to an increase in resistance either in animal or human pathogens.<sup>429</sup>

However, in spite of their best efforts, Cyanamid’ s 1970 campaign backfired. On the one hand, Cyanamid and its PR firm, the Graham Cherry Organisation, repeated E.S. Anderson’ s mistake of underestimating Whitehall’ s corporatist abhorrence of public controversy. On the other hand, Cyanamid underrated popular support for Swann. Having attended Cyanamid’ s press briefing, a ministry official reported that the “press representatives present” had reacted “surprisingly hostile.”<sup>430</sup> According to the official, journalists had wanted to know “why the conference was being held” and “why they should believe what the two doctors had said in preference to Swann’ s report.”<sup>431</sup> In the end, “only the Guardian (...) covered [the] story.”<sup>432</sup> Referring to Cyanamid’ s failed campaign, MAFF’ s Animal Health Division was relieved to note that other manufacturers were “not prepared to use the publicity methods adopted by Cyanamid.”<sup>433</sup>

Nonetheless, MAFF’ s position remained difficult: complaining that “it is not possible to produce conclusive scientific evidence to justify fully either accepting the proposals or rejecting them,”<sup>434</sup> a report noted “that the debate is not over but it is believed that in view of the uncertainties we cannot afford to wait until it is – if ever.”<sup>435</sup> Attempting to win farmers and manufacturers over by offering “as smooth a transition as possible,”<sup>436</sup> officials repeatedly postponed implementation deadlines – first to October 1970<sup>437</sup> and then to January 1971.<sup>438</sup>

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427<sup>¶</sup>*Ibid.*, p. 2.

428<sup>¶</sup>TNA MAF 284/283 (Press Information, Cyanamid of Great Britain Limited, ‘New Evidence Casts Doubt On Link Between Farm Antibiotics and Human Disease’ , 20 Jan, 1970), p. 1.

429<sup>¶</sup>*Ibid.*

430<sup>¶</sup>TNA MAF 284/283 (Minute, I Armstrong to Mr Dawes, 21 Jan, 1970).

431<sup>¶</sup>*Ibid.*

432<sup>¶</sup>*Ibid.*

433<sup>¶</sup>TNA MAF 416/67 (Submission to Minister, Swann Report – Current Position and Further Action, Appendix: Background (Animal Health Division II, 8 Jul, 1970), p. 3.

434<sup>¶</sup>*Ibid.*, p. 13.

435<sup>¶</sup>*Ibid.*, p. 7.

436<sup>¶</sup>*Ibid.*, p. 12.

437<sup>¶</sup>*Cf.* TNA MAF 284/283 (Minute, E Doling to D Evans, 26 May, 1970).

438<sup>¶</sup>*Cf.* TNA MAF 416/67 (Submission to the Minister, Swann Report – Current Position and Further Action, 13 Jul, 1970), p. 2.

Following July 1970, the political situation complicated things further. As a result of the conservative election victory, James - later Baron - Prior was appointed Minister of Agriculture. Meeting officials in August, Prior “agreed that failure to implement the Swann recommendations would be very difficult to defend politically.”<sup>439</sup> Although officials warned that “too many deadlines had been breached in the past,”<sup>440</sup> Prior, however, hesitated. Six days after the August meeting, MAFF further postponed the implementation-date of the Swann bans to March and then to August 1971.<sup>441</sup>

At first glance, Prior’s reluctance to don the garb of consumer protector is surprising. However, the minister’s hesitation might have resulted from his close ties to the pharmaceutical industry. Three days before the August meeting, Prior had received a letter from Cyanamid’s Keith P. Grainger. The contrast between Cyanamid International’s hostile correspondence with Labour’s John Mackie and the extremely intimate tone of Grainger’s letter to Prior is striking. After congratulating “dear Jim” for “[getting] off to a very good start!! [sic],”<sup>442</sup> Grainger immediately broached the topic of the Swann bans: “Obviously, I would be considered to be biased, but there is little doubt that this Report caused considerable comment in scientific circles and some outstanding figures have taken issue with Professor Swann.”<sup>443</sup> Furthermore, Grainger warned that the “practical problems and the cost of fully implementing ‘Swann’ would be immense.”<sup>444</sup> Portraying R-factors as a brand new discovery, Grainger announced that there was “a clear need for wide and comprehensive discussion so that scientific thinking can crystallise and thus enable any Governmental action to be based on all the available scientific information.”<sup>445</sup> Casting doubt on existing R-factor expertise, Grainger was sure that Prior would not “wish farmers and veterinary surgeons to be made the scapegoats for a subject which has much wider implications.”<sup>446</sup> While Grainger appreciated that “Jim” had “inherited this particular ‘hot potato’ from [his] predecessor,”<sup>447</sup> he was eager to provide his friend with all necessary information.

Signing with his first name, Keith also invited MAFF to send representatives to an upcoming symposium on the “The Problems of Drug Resistant Pathogenic Bacteria”<sup>448</sup> in New York’s Waldorf-Astoria Hotel. Organised by the New York

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439 TNA MAF 416/67 (Minute, PW Murphy to Mr. Doling, 14 Aug, 1970).

440 Ibid.

441 Cf. TNA MAF 416/67 (Press Notice, Antibiotics, Further Implementation of Recommendations of the Swann Committee, 20 Aug, 1970), p. 1.

442 TNA MAF 416/67 (K.P. Grainger to Jim M.L. Prior [sic], 10 Aug, 1970), p. 1.

443 Ibid.

444 Ibid., p. 2.

445 Ibid., p. 2.

446 Ibid.

447 Ibid.

448 Ibid., attachment, p. 1.

Academy of Sciences, the symposium was chaired by H.B. Woodruff, Executive Director of the Merck Institute of Therapeutic Research.<sup>449</sup> After a brief discussion, MAFF decided to send A.B. Paterson, director of the Central Veterinary Laboratory in Weybridge, to New York. Justifying the decision, a ministry official noted:

First, and this is as it were a public relations reason, in view of the strong attack which has been made on the Swann Committee recommendations we ought to make it abundantly clear that we are prepared to listen to all the views which are being put forward; (...). Second, (...), we ought in fact make sure that we are in touch with the latest developments.<sup>450</sup>

However, instead of promoting clarity, the New York symposium exposed scientific divisions regarding antibiotic policy. On the medical side, Maxwell Finland and Naomi Datta expressed concern about rising levels of antibiotic resistance in hospitals.<sup>451</sup> On the agricultural side, expert opinion was contradictory. Presenting Dutch monitoring results, P.A.M. Guinée from the National Institute of Public Health praised British bans and cautioned against the use of neomycin and chloramphenicol in veterinary medicine and resistant bacteria in food and surface water.<sup>452</sup> Working for the Royal College of Surgeons in Dublin, Ellen Moorhouse focussed on possible effects of agricultural antibiotics on public health. According to Moorhouse, a comparative study of urban and rural resistance had shown that 12 out of 12 infants excreting *E. coli* “resistant to four or five drugs belonged to families who cared for livestock.”<sup>453</sup> Meanwhile, the percentage of chloramphenicol-resistant *E. coli* isolated from clinically ill Irish animals had risen from 15% of all isolates in 1965 to 50% in the first four months of 1970.<sup>454</sup>

Exercising damage control, scientists associated with the pharmaceutical industry downplayed the dangers of resistance transfer. According to Harold Jarolmen from Cyanamid’s Agricultural Division, R-factor transfer in live animals was negligible. In the rare cases that *in vivo* transfer did occur, bacterial strains supposedly lost their “virulence” and the bacterium was put “at a competitive disadvantage with its drug-sensitive parent.”<sup>455</sup> Describing his 1948 discovery of the antibiotic growth effect, Thomas Jukes embarked on a skilled defence of antibiotic feeds: while the exact mechanisms of antibiotic growth promotion remained unclear, experiments with germ-free chickens indicated that growth was caused by antibiotics’ elimination of irritating or toxemic intestinal bacteria. If growth resulted from the elimination of these bacteria,

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449<sup>□</sup>Cf. Ibid.

450<sup>□</sup>TNA MAF 416/67 (Minute, E. Doling to Mr. Carnochan, 15 Jun, 1970).

451<sup>□</sup>Maxwell Finland, 'Changes in the Susceptibility of Selected Bacteria to Widely Used Antibiotics', *Annals of the New York Academy of Sciences*, 182 (1971), Naomi Datta, 'R Factors in Escherichia Coli', *ibid.*

452<sup>□</sup>Cf. P. A. M. Guinée, 'Bacterial Drug Resistance in Animals', *ibid.*, pp. 40-43; 48-50.

453<sup>□</sup>Ellen Moorhouse, 'Prevalence of R+ Bacteria in Infants in Ireland', *ibid.*, p. 68.

454<sup>□</sup>*ibid.*, p. 69.

455<sup>□</sup>Howard Jarolmen, 'Experimental Transfer of Antibiotic Resistance in Swine', *ibid.*, p. 79.



the emergence of antibiotic resistance would logically reduce growth and farmers would stop buying antibiotic feeds.<sup>456</sup> While stress-prophylaxis was emerging as “the most important practical use of antibiotics,”<sup>457</sup> agricultural antibiotics had already reduced the prevalence of animal disease, which still cost US farmers ca. \$25 million per year.<sup>458</sup> However, most importantly, antibiotics were closing the global protein gap:

The risks we are prepared to take in producing food will be proportional to our needs for it. A man who is well-fed will be quite finicky about risks. Does this mean that the point has been reached at which antibiotics should be withdrawn from animal feeds in the U.S.A.? (...) I do not think so.<sup>459</sup>

Naturally, British presenters took a different view. Analysing *in vivo* R-factor transfer, H. Williams Smith contradicted Cyanamid’s claims. Referring to Anderson’s calf studies, Williams Smith asserted: “under natural conditions large scale transfer of R factors has occurred among some kinds of bacteria.”<sup>460</sup> Speaking ahead of Jukes, John R. Walton underlined the scientific soundness of the Swann report but distanced himself from calls for further antibiotic bans. According to Walton, antibiotic-use remained an essential component of intensive livestock husbandry without which “the economics of the British livestock industry would be seriously affected ...”<sup>461</sup> However, regulators had to take bacterial resistance seriously. According to Walton, it was clear that “antibiotics are being used carelessly and that hygiene is being neglected at many levels of food production.”<sup>462</sup> While few cases of harm resulting from agricultural antibiotic resistance were known, “lack of information (...) must not be allowed to give rise to complacency.”<sup>463</sup> Transferable drug resistance should be monitored “so that suggestions for dealing with any future crisis may be based on sound reasoning.”<sup>464</sup>

In New York, British officials also discussed antibiotic regulation with their American colleagues. Presenting at the symposium, the head of the FDA’s Bureau of Veterinary Medicine, C. D. Van Houweling, was leading an agency task force on low-level antibiotic feeds. Referring to Swann, Van Houweling claimed:

There are important differences in the uses of antibiotics in animals in Great Britain and in the United States. We believe that through our new drug approvals and our requirements for advance approval for mixing drugs in animal feed, we have controls that they do not have in Great Britain. However, we do

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<sup>456</sup>Cf. Thomas H. Jukes, 'The Present Status and Background of Antibiotics in the Feeding of Domestic Animals', *ibid.*, pp. 362-63; 76.

<sup>457</sup>*Ibid.*, p. 364.

<sup>458</sup>*Ibid.*, p. 369.

<sup>459</sup>*Ibid.*, p. 363.

<sup>460</sup>H. Williams Smith, 'Observations on the *in Vivo* Transfer of R Factors', *ibid.*, p. 80.

<sup>461</sup>John R. Walton, 'The Public Health Implications of Drug-Resistant Bacteria in Farm Animals', *ibid.*, p. 358.

<sup>462</sup>*Ibid.*, p. 361.

<sup>463</sup>*Ibid.*

<sup>464</sup>*Ibid.*

recognize that the continuous or prolonged use of antibiotics in feed does cause gram-negative organisms to develop resistance.<sup>465</sup>

Writing to Van Houweling one week later, Weybridge-director Paterson looked forward to reading the report of the FDA Task Force on Antibiotics in Feeds, “which can perhaps be described as the ‘U.S. Swann’.”<sup>466</sup> Having learnt “a good deal” while in the US, Paterson promised to send Van Houweling British material on the development of resistance under “feedlot conditions.”<sup>467</sup> However, Paterson also referred to divergent transatlantic assessments of antibiotic-risk:

At the Conference itself I felt that quite unwittingly we were talking rather at cross-purposes in that the FDA has concerned itself very largely with the problem of residues and the possible effect of these residues on the human population, whilst Swann is almost entirely concerned with the possible development of antibiotic resistant strains and their significance in outbreaks of disease in both animals and humans.<sup>468</sup>

As a consequence of Swann, British officials banned therapeutic antibiotics in feeds in August 1971. While Cledwyn Hughes had publicly committed MAFF to the bans, ministry officials remained remarkably reluctant to implement less prominent Swann recommendations.

Official inaction was often caused by internal power struggles: the delayed establishment of an expert committee responsible for all antibiotics is a case in point. Supposed to oversee antibiotic-use, the recommended committee would sit uncomfortably between the recently founded Veterinary Products Committee (VPC) and the Committee on Safety of Medicines (CSM).<sup>469</sup> In spite of MAFF and DHSS pressure,<sup>470</sup> tenuous opposition by the VPC and CSM led to a break down of British antibiotic licensing. Following the dissolution of the older Antibiotics Panel in 1970,<sup>471</sup> it took involved parties two years to compromise on the establishment of a joint advisory committee for antibiotics, whose advice would not be binding for the CSM and VPC.<sup>472</sup> In the face of further delays, A.M.R. Nelson from Upjohn Limited complained that the British licensing vacuum had prevented the launch of Upjohn’s Linco-Spectin Soluble Powder at the 1973 BVA Congress: “now we shall certainly lose the impact that such an introduction could have enjoyed quite apart from the lost sales that a delayed entry

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<sup>465</sup>C. D. Van Houweling, 'The Food, Drug, and Cosmetic Act, Animal Drugs, and the Consumer', *ibid.*, p. 412.

<sup>466</sup>TNA MAF 416/67 (AB Paterson to Dr. van Houweling, 22 Oct, 1970).

<sup>467</sup>*Ibid.*

<sup>468</sup>*Ibid.*

<sup>469</sup>Cf. TNA MAF 260/678 (NW Taylor to Departments - MAFF, 24 Aug, 1971), p. 1.

<sup>470</sup>Cf. TNA MH 149/2484 (DHSS Medicines Division, Paper A: Medicines Act - Proposed Orders As To Antibiotics, First Draft, 16 May, 1972), pp. 3-4.

<sup>471</sup>TNA MH 149/2484 (A Note of A meeting Held to Discuss the Establishment of a Committee on Antibiotics Held in Finbury Square, 20 Mar, 1972).

<sup>472</sup>Cf. TNA MAF 260/678 (NW Taylor to Departments - MAFF, 24 Aug, 1971), p. 2; TNA MAF 461/34 (Note of Meeting on the Future of the Joint Sub-Committee on Antimicrobial Substances, 28 Sep, 1979), pp. 1-2; TNA MH 149/2484 (CSG Russell (VPC) and EF Scowen (CSM) to Sir James Howie, 12 Dec, 1972); TNA MH 149/2484 (Medicines Commission: Antibiotics, Second Draft, 9 Jun, 1972), p. 4.

can mean.”<sup>473</sup> In Nelson’s opinion, the entire pharmaceutical industry would welcome the speedy instalment of an antibiotics committee. Alarmed, the VPC demanded rapid action from the CSM:

... we (...) are also anxious to see this Sub-Committee off the ground (...) because of the number of antibiotic applications awaiting scrutiny. In the circumstances I should be most grateful if everything possible could be done (...) to save any further embarrassment.<sup>474</sup>

In the event, industry pressure proved effective. With three years delay, the Joint Sub-Committee On Antimicrobial Substances (JSC) started work on July 2<sup>nd</sup> 1973.<sup>475</sup> Meeting four times per year, the committee was chaired by the already familiar PHLS director Prof James Howie.<sup>476</sup> In addition to Howie, the JSC included other familiar names: officially reconciled with MAFF in 1972,<sup>477</sup> E.S. Anderson served alongside J.R. Walton and H. Williams Smith.<sup>478</sup> However, JSC members soon noticed that they lacked real power. In 1969, the Swann report recommended that “returns of the import, production and distribution of antibiotics for different purposes should be required.”<sup>479</sup> However, pharmaceutical manufacturers repeatedly refused to provide even basic sales data to the JSC.<sup>480</sup> As was to be expected, relations with the CSM and VPC also proved difficult. Because the CSM preferred to consult its own experts, the JSC gradually transformed into a VPC proofing body for licensing submissions. However, the JSC was unable to access the VPC’s confidential licensing information available to the VPC.

Within the JSC, dissatisfaction levels peaked in September 1979 when members sent a list of grievances to the VPC and CSM and established a working party to examine the committee’s terms of reference. According to Prof Howie, distinguished JSC members had simply stopped attending meetings. Meanwhile, remaining members were frustrated by their inability to properly examine often poorly submitted licensing applications. Attending VPC meetings, JSC members “not unreasonably consider[ed] that they are too often being invited merely to hazard a guess about the value or safety of the products under consideration.”<sup>481</sup> Referring to parallel reports on the

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473 TNA MH 149/2484 (AMR Nelson to Prof CSG Grunsell, 14 Mar, 1973).

474 TNA MH 149/2484 (RJ Blake to JB Brown, 27 Mar, 1973).

475 Cf. TNA BN 116/71 (Joint Sub-Committee on Antimicrobial Substances, 1<sup>st</sup> meeting, 2 Jul, 1973).

476 Cf. TNA MAF 461/34 (Minute, Pamela Green to members of meeting between MAFF and MH, Sep, 1979), p. 1.

477 Only in 1972 did MAFF break its policy of silence towards E.S. Anderson; Cf. TNA MAF 416/85 (Minute, Mr. Barker, 3 Feb, 1972).

478 Cf. MH 149/2484 (Terms of Reference of the Joint Sub-Committee on Antimicrobial Substances).

479 TNA MAF 416/77 (Minute, FC Parker to JC Kelsey, The Swann Committee (Summary), 18 Aug, 1969), p. 2 (points 28-29).

480 Cf. TNA BN 116/71 (Appendix A, ML 11, Extract from the report of the Joint Committee on the Use of Antibiotics in Animal Husbandry and Veterinary Medicine).

481 Cf. TNA MAF 461/34 (James Howie to Chairmen of Committee on Safety of Medicines (CSM) and Veterinary Products Committee (VPC), 7 Aug, 1979, p. 2.

pharmaceutical black market, the JSC admitted that its attempts to “secure rational use of anti-microbial substances”<sup>482</sup> had failed.<sup>483</sup>

Although some officials considered it unwise to disband the JSC due to the “emotive area”<sup>484</sup> it dealt with, the VPC and CSM were unwilling to strengthen the committee. According to the CSM and DHSS, “little would be lost if [the JSC] were disbanded.”<sup>485</sup> Unwilling to fund the JSC by itself, the VPC agreed to disband the committee.<sup>486</sup> Deploring their official dismissal on December 31<sup>st</sup> 1980,<sup>487</sup> JSC members warned that “the very problem which gave rise to the formation of the Swann Committee”<sup>488</sup> was reappearing in the form of resistant salmonella. Wedged between the VPC and CSM, the JSC had never stood a chance. At the same time, its dismissal marked a regression into the pre-1969 separation of responsibilities for agricultural and medical antibiotic regulation.

The JSC was not the only Swann recommendation to suffer from lacking official support. During the early 1970s, MAFF and DHSS were also reluctant to commit funds to the monitoring of antibiotic resistance. While farmers supported protectionist monitoring,<sup>489</sup> officials feared that it might necessitate the diplomatically “drastic step”<sup>490</sup> of import rejections. According to MAFF, resistance monitoring would surely reveal “major difficulties”<sup>491</sup> with continental and Irish imports. Constrained by funding and trade considerations, officials decided to appease farmers with a pilot-survey of meat imports. The pilot survey was to be evaluated by an interdepartmental committee and conducted by E.S. Anderson, who – with characteristic bluntness – had already stated that the project was “eyewash.”<sup>492</sup> Unperturbed by Anderson’s views, officials planned to use the study’s results to dissuade other countries from using therapeutic antibiotics to rear British-bound animals. By applying diplomatic pressure, British officials hoped both to avoid installing an expensive domestic monitoring programme and appease protectionists.<sup>493</sup>

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482<sup>¶</sup>Ibid., p. 2.

483<sup>¶</sup>Cf. also TNA MAF 461/34 (Minute, C.J. Lawson to Mr. Camp, Joint Sub-Committee on Antimicrobial Substances: Future, 23 Nov, 1979).

484<sup>¶</sup>TNA MAF 461/34 (Minute, Paul Ditchfield to Mr. Lawson (14 Apr, 1980).

485<sup>¶</sup>TNA MAF 461/34 (Note of Meeting on the Future of the Joint Sub-Committee on Antimicrobial Substances, 28 Sep, 1979), p. 2.

486<sup>¶</sup>Cf. Ibid., pp. 2-4.

487<sup>¶</sup>Cf. BN 116/119 (Joint Sub-Committee on Antimicrobial Substances, Minutes of Meeting on December 3<sup>rd</sup>, 1980), p. 7; cf. also John Harvey and Liz Mason, *The Use and Misuse of Antibiotics in UK Agriculture. Part 1: Current Usage* (Bristol: Soil Association, 1998), p. 10.

488<sup>¶</sup>BN 116/119 (Joint Sub-Committee on Antimicrobial Substances, Minutes of Meeting on 3 Dec, 1980), p. 3.

489 TNA MAF 416/85 (Minute, E. Doling, 24 Apr, 1970), p. 1. **MARK CONTAGION**

490<sup>¶</sup>TNA MAF 416/85 (Minute, F.C. Parker to Mr. Doling, 23 Feb, 1970).

491<sup>¶</sup>TNA MAF 416/85 (Minute, E. Doling, 24 Apr, 1970), p. 2.

492<sup>¶</sup>Cf. TNA MAF 416/85 (Minute, J.G. Carnochan, 30 Apr, 1970).

493<sup>¶</sup>Cf. TNA MAF 416/85 (Minute, R.J. Blake, 27 Aug, 1970).

However, in September 1970, Britain's programme of "spreading the Swann gospel"<sup>494</sup> was put on hold.<sup>495</sup> Concerned about harming EEC membership negotiations,<sup>496</sup> officials argued that Britain should put its "own house in order"<sup>497</sup> instead of monitoring imports. However, behind the scenes, Anderson was allowed to continue his survey. Following EEC membership, officials wanted "to confront countries with a vested interest in antibiotics with scientific facts but we would prefer to keep quiet until such data are available [sic]."<sup>498</sup>

Reporting in April 1972, Anderson confirmed ministerial suspicions.<sup>499</sup> Between February and October 1971, a team of veterinarians had collected meat samples at ports in Liverpool, Hull and London and sent them to Anderson for analysis. In total, the team collected 185 samples of Irish beef, 131 samples of Irish pork, 10 samples of American sheep livers and 40 samples of American lamb livers.<sup>500</sup> In the case of US samples, 29 of 32 lamb livers and two of seven sheep livers contained resistant *E. coli*.<sup>501</sup> Despite cleansing by high-pressure hosing, 57.8% of Irish beef samples and 75.6% of Irish pork samples were contaminated with *E. coli*. While 25.2% of isolated *E. coli* from beef were resistant to antibiotics, an incredible 94.9% of isolated *E. coli* from pork proved resistant to antibiotics.<sup>502</sup> Furthermore, it was "relatively common" for isolated Irish *E. coli* to be "resistant to combinations of the 'therapeutic' drugs ampicillin, chloramphenicol, neomycin-kanamycin, streptomycin and sulphonamides."<sup>503</sup> According to Anderson, the results were not surprising, "since the Irish farmer has free access to all therapeutic antibiotics."<sup>504</sup>

In spite of complaints about the small sample-size, Anderson's confidential study was received with interest by British and American regulators.<sup>505</sup> Writing in May 1972, a MAFF official believed that Anderson's study would help pressure the Republic of Ireland to block sales of Irish antibiotics into Northern Ireland.<sup>506</sup> Meeting in June 1972, the Working Group on the Monitoring of Imported Meat for Antibiotic

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494<sup>□</sup>Cf. TNA MAF 416/85 (Minute, E. Doling, 1 Sep, 1970).

495<sup>□</sup>Cf. TNA MAF 416/85 (Minute, E. Doling, 18 Nov, 1970), pp. 1-2.

496<sup>□</sup>Cf. TNA MAF 416/85 (Minute, E. Doling, 24 Apr, 1970), p. 4.

497<sup>□</sup>Cf. TNA MAF 416/85 (Minute, D. Stoker, 16 Jun, 1971).

498<sup>□</sup>TNA 416/86 (Minute, JN Jotcham, 20 Sep, 1972).

499<sup>□</sup>Cf. TNA MAF 416/86 (E.S. Anderson to J. Jotcham, 17 Apr, 1972; attached, Interdepartmental Working Party on the implementation of the Swann Report. Examination of imported meat for contamination with drug-resistant *Escherichia coli*).

500<sup>□</sup>Ibid., pp. 2-3.

501<sup>□</sup>Ibid., p. 8; attached, Table 1: *E. coli* from Irish beef and pork carcasses.

502<sup>□</sup>Cf. TNA MAF 416/86 (E.S. Anderson to J. Jotcham, 17 Apr, 1972; attached, Interdepartmental Working Party on the implementation of the Swann Report. Examination of imported meat for contamination with drug-resistant *Escherichia coli*), p. 3.

503<sup>□</sup>Ibid., p. 9.

504<sup>□</sup>Ibid.

505<sup>□</sup>Cf. TNA MAF 416/86 (Minute, ARM Kidd to WT Barker, 1 Jun, 1972); TNA MAF 416/86 (WT Barker to ES Anderson, 20 Jun, 1974).

506<sup>□</sup>Cf. TNA MAF 416/86 (RW McQuiston to WT Barker, 8 May, 1972).

Resistant Enterobacteria pressed for further studies of French and Dutch imports as both countries had “a vested interest in the use of antibiotics in animal husbandry.”<sup>507</sup>

However, monitoring aspirations received a blow in January 1973 when resistance tests conducted by British Veterinary Investigation Centres showed that something was rotten in the state of Britain. Between 1971 and 1972, streptomycin-resistance amongst isolated *E. coli* strains had risen from 47 to 50%; tetracycline-resistance from 44 to 50%; ampicillin-resistance from 49 to 56%; neomycin-resistance from 19 to 20%; chloramphenicol-resistance from 16 to 17% and nitrofurantoin-resistance from 11 to 13%.<sup>508</sup> The results clearly contradicted projected Swann outcomes. Afraid of jeopardizing the ‘Swann gospel’, British officials stopped commissioning resistance studies. In 1973, a MAFF official noted that large-scale resistance surveys could “only be done on the basis of a free exchange of information.”<sup>509</sup> However, “this might rob us of some of our advantage during the 5-year derogation from EEC practice (...), in the course of which we hope that the Community will align with us.”<sup>510</sup> Further surveys might even “invalidate the Swann Doctrine.”<sup>511</sup>

Following the mid-1970s, there were only sporadic British attempts to monitor antibiotic resistance in agriculture and food production. One such survey compared antibiotic-resistance in French and British eggs in 1975. However, the comparison of 23 bulked samples of eggs revealed no difference of resistance levels and undermined protectionists.<sup>512</sup> Originating as a weak compromise in the fight against antibiotic-resistance, Swann’s petrification into an official doctrine obstructed productive policy. As a consequence, British officials missed an important chance to monitor antibiotic-resistance and adapt antibiotic regulation accordingly.

In addition to resistance monitoring and the short-lived JSC, Britain also failed to enact the Swann report’s proposed ban of antibiotic-advertisements to farmers. Once again, Minister ‘Jim’ Prior played a dubious role. In its 1972 policy recommendation, MAFF’s Animal Health Division noted that the BVA, RCVS and Pharmaceutical Society all favoured banning POM advertisements to farmers:

They argue that [veterinarians’] (...) task should not be made more difficult by uninformed pressures from clients responding to advertising. Also they think that (...) there is a danger that some clients whose interest has been aroused will obtain supplies illicitly.<sup>513</sup>

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<sup>507</sup> TNA MAF 416/86 (Working Group on the Monitoring of Imported Meat for Antibiotic Resistant Enterobacteria, Meeting, 13 Jun, 1972), p. 2.

<sup>508</sup> TNA MAF 416/86 (ARM Midd, Antibiotic Resistance in the UK and Belgium, 13 Jan, 1973), p. 1.

<sup>509</sup> Cf. MAF 416/86 (JN Jotcham to AB Paterson, 9 Apr, 1973).

<sup>510</sup> Ibid.

<sup>511</sup> Ibid.

<sup>512</sup> Cf. TNA MAF 282/186 (Steering Group on Food Surveillance, Sub-Group on Antibiotic Residues in Food, Secretariat, June 1975).

<sup>513</sup> TNA MAF 416/70 (Submission to Minister, Swann Report – Recommendation on Advertising, January 1972).

However, the ABPI, the NFU and the British Poultry Federation opposed advertising bans: “They argue that the prescription requirement gives control to veterinarians and that the Government should not ‘molly-coddle’ them by restricting the information available to farmers.”<sup>514</sup> In spite of several meetings, involved parties had failed to reach an agreement. As a consequence, Animal Health Division noted that the “proper course would be to accept the logic of the Swann recommendation” and announce “the intention to make regulations in the absence of an effective voluntary scheme.”<sup>515</sup>

However, once again, Minister Prior did not heed his officials’ advice. Despite personal appeals by Junior Health Minister Lord Aberdare, Prior yielded to the pharmaceutical industry. Agreeing to refer the matter to the still non-existent JSC, a draft letter from Prior stated:

As you know, I do not subscribe to the view that the veterinary profession is not strong enough to resist pressure from its farmer clients; and although the drug manufacturers are obviously keen to sell I am not sure that advertising necessarily increases overall demand.<sup>516</sup>

A savvy politician, Prior was, however, “glad to accept [Aberdare’s] proposals that we leave it to officials to notify the interested organisations.”<sup>517</sup>

One year later, both the JSC and VPC expressed support for the proposed advertising ban.<sup>518</sup> Even though Jim Prior had since been promoted to Leader of the House of Commons, his successor failed to address the matter ahead of the 1974 general elections. Following the Conservatives’ defeat, officials duly resubmitted the proposed advertising restrictions to their new Labour ministers<sup>519</sup> and Animal Health Division repeated its recommendation of voluntary or statutory restrictions.<sup>520</sup> Confessing his frustration in an internal minute, an official noted:

My own view is that, while in matters of this sort there is often much to be said for leaving well alone, in this case we cannot ignore the advice of 3 official committees nor swallow the assertion of the manufacturers that they do not seek to enlist the support of the farmer in building up an even bigger market in therapeutic antibiotics, regardless of true need.<sup>521</sup>

However, the politically opportune moment for comprehensive regulation had passed. According to an internal minute from 1975, technicalities were causing

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<sup>514</sup> Ibid.; cf. also TNA MAF 416/70 (Mason to AC Sparks, 23 Feb, 1972).

<sup>515</sup> TNA MAF 416/70 (Submission to Minister, Swann Report – Recommendation on Advertising, January 1972).

<sup>516</sup> TNA MAF 416/70 (Draft for the Minister’s Signature to Lord Aberdare (DHSS)); cf. also Aberdare’s corroboration of the correspondence; TNA MAF 416/70 (Lord Aberdare to James Prior, 21 Mar, 1972).

<sup>517</sup> TNA MAF 416/70 (Draft for the Minister’s Signature to Lord Aberdare (DHSS)).

<sup>518</sup> Cf. TNA MAF 416/71 (Minute John H Drury to Mr Nelson, 23 Jan, 1974); TNA MAF 416/71 (Minute RJ Blake to Mr WT Barker, 17 Apr, 1974).

<sup>519</sup> Cf. Ibid.

<sup>520</sup> Cf. TNA MAF 416/71 (Submission to the Minister, Swann Report – Recommendation On Advertising, 20 Jun, 1974), p. 5.

<sup>521</sup> TNA MAF 416/71 (Minute, CH Shillito to Miss Evans, 9 Jul, 1974).

regulatory delays. For example, it was unclear how to define ‘professional’ as opposed to ‘lay’ journals and ‘therapeutic’ as opposed to ‘non-therapeutic antibiotics’.<sup>522</sup> In the end, the matter was simply dropped.

Initially, it looked as though antibiotic residue regulation would follow the sorry example of the JSC, resistance monitoring and advertising bans. Indeed, the first post-Swann years also saw little change. Even though the VPC supported the notion of residue monitoring in April 1971,<sup>523</sup> residue tests remained unstandardized and results could vary by up to 50%.<sup>524</sup> The only exception was the standardised test for penicillin in milk. Testing for rather generous penicillin residues, the MMB’s penalty scheme had reduced positive test incidences from 10% in 1960/61 to ca. 1% in the mid-1970s.<sup>525</sup> However, authorities remained blissfully ignorant regarding the overall antibiotic-contamination of British food.

Because no data forced legislators to act, British consumer protection remained based on 1950s legislation: with the later exceptions of nisin and oxytetracycline,<sup>526</sup> the 1955 Food and Drugs Act and the Preservatives in Food Regulations prohibited adding antibiotics to food. However, there was no legislation prohibiting the sale of food or milk in which antibiotics were ‘present’ as distinct from ‘added’.<sup>527</sup>

As a consequence, consumers’ only protection from residues lay in the wording of Section Two of the 1955 Food and Drugs Act. According to the 1955 Act, it was an offence “to sell to the prejudice of the purchaser any food which is not of the nature, substance or quality demanded.”<sup>528</sup> In a few cases, local Food and Drug Authorities used this legal loophole to exert pressure on producers and MAFF officials. Even though prosecution and actual convictions were extremely rare, MAFF and MMB officials voluntarily restricted antibiotic licensing for sensitive products like eggs and milk. During the early 1970s, officials warned egg producers that they could not protect them should Food and Drugs Authorities detect antibiotic residues in eggs or other products.<sup>529</sup>

However, during the mid-1970s, British residue regulations came under domestic and international pressure. One reason for this was the transition of international meat controls from macroscopic inspection for diseases and adulteration to laboratory-based

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<sup>522</sup>Cf. TNA MAF 416/71 (Minute, Mr Nelson to RJ Blake, 9 Jan, 1975).

<sup>523</sup>Cf. TNA MAF 416/85 (D. Stoker to Dr. B.A. Rose, 28 May, 1971).

<sup>524</sup>Cf. TNA MAF 284/282 (Committee on Medical Aspects of Food Policy, meeting, 4 Mar, 1968).

<sup>525</sup>TNA MAF 461/67 (Steering Group on Food Surveillance, Sub-Group Antibiotic Residues in Food, Antibiotics Price Deduction Scheme, Jan, 1976).

<sup>526</sup>The practice of preserving food with antibiotics other than nisin was no longer endorsed by the Food Additives and Contaminants Committee in 1975; cf. TNA MAF 282/186 (Steering Group on Food Surveillance. Sub-Group on Antibiotic Residues in Food. Minutes of the 1<sup>st</sup> meeting of the Sub-Group held on 30 Apr, 1976), p. 3; TNA MAF 282/186 (Steering Group on Food Surveillance, Sub-Group on Antibiotic Residues in Food, Secretariat, March 1976), p. 19.

<sup>527</sup>Cf. TNA MAF 284/282 (L.C. Gaskell to Mr. J.G. Kelsey, 19 Sep, 1968).

<sup>528</sup>TNA MAF 260/678 (E.J. Mehen to NW Taylor, 2 Sep, 1971).

<sup>529</sup>Cf. TNA MAF 260/678 (S. Simmons to WJD Williams, 9 Aug, 1971); TNA MAF 260/678 (LR Maddock to WJD Williams, 4 Feb, 1971).



inspection for unwanted residues.<sup>530</sup> Reacting to this development, British officials decided to set up a pilot survey of residues in British meat and install a Steering Group on Food Surveillance.<sup>531</sup> Conducted by the Laboratory of the Government Chemist between October and December 1975, the pilot survey analysed 789 pig kidney and chicken liver samples. Of these, 25.5% tested positive for antimicrobial residues with strong variations between kidney and liver samples.<sup>532</sup> However, the testing methods proved unreliable: only 27.8% of positive kidney and 44.5% of positive liver samples showed inhibition zones matching those of spiked control samples. Because nobody had told the government chemist Mr Lott which antibiotics to test for, the tests had only been designed for penicillin and tetracyclines.<sup>533</sup> At the same time, tests' sensitivity did not match the minimum inhibition concentrations of every antibiotic. As a result, negative tests did not necessarily indicate residue-free meat.<sup>534</sup> Meanwhile, limited electrophoresis capacities only allowed processing at a rate of 15-20 samples per week. However, residues' antimicrobial activity decreased during storage.<sup>535</sup> Seen in this light, the five samples conclusively testing positive for penicillin or tetracycline were hardly reassuring.<sup>536</sup>

Pressure for further surveys soon increased. Following Britain's EEC-accession, Directive (64/433/EEC) initially allowed national food safety rules to differ in the context of the intra-Community fresh meat trade.<sup>537</sup> However, by the mid-1970s, several EEC members were calling for unified monitoring. According to EEC Draft Directive (72/462) on the Importation of Fresh Meat from Third Countries, imports of meat containing antibiotic-residues were to be banned.<sup>538</sup> Similar demands were voiced for the intra-community trade. As a consequence, all member states would have to establish and coordinate monitoring systems. Meanwhile, German authorities rejected

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530 Cf. Peter A. Koolmes, 'Veterinary Inspection and Food Hygiene in the Twentieth Century', in David F. Smith and Jim Philips (eds.), *Food, Science, Policy and Regulation in the Twentieth Century. International and Comparative Perspectives* (London and New York: Routledge, 2000), p. 62.; *ibid.*, p. 60 and 62.

531 TNA MAF 461/67 (D. Tingle/ John Fitzgerald to R.J. Blake, 31 Oct, 1975; attached note), pp. 1-2.

532 TNA MAF 461/67 (Steering Group On Food Surveillance Sub-Group on Antibiotic Residues in Food: Further Results on the Survey Of Residues in Poultry and Pigeat, March, 1976), pp. 1-6; areas with intensive husbandry produced the most residues, for example, 57% of chicken livers from the South-East tested positive for antibiotic residues; *Ibid.*, p. 5.

533 Cf. TNA MAF 461/67 (Steering Group on Food Surveillance Sub-Group on Antibiotic Residues in Food, 1<sup>st</sup> Meeting, 20 Apr, 1976), p. 5.

534 TNA MAF 461/67 (Secretariat, Incidence of Antibiotic Residues in Food, Mar, 1976), p. 2.

535 *Ibid.*, p. 1 [handwritten note] -2 and 6.

536 Cf. TNA MAF 461/67 (Steering Group on Food Surveillance Sub-Group on Antibiotic Residues in Food, 1<sup>st</sup> Meeting, 20 Apr, 1976), p. 5.

537 Cf. TNA MAF 461/67 (J.A. Davies to J.E. Tugwell, 16 Nov, 1977), p. 1.

538 Cf. TNA MAF 282/186 (Steering Group on Food Surveillance, Sub-Group on Antibiotic Residues in Food, Secretariat, March 1976), p. 19; adoption was planned for January 1977.

three consignments of residue-tainted British meat in 1975 and 1976<sup>539</sup> and the Deputy Director of the Dutch Veterinary Service complained:

It was found that [British] slaughter animals are not or hardly examined on the presence of residues of antibiotics, growth stimulators, veterinary medicines and agricultural pesticides. (...) a number of these antibiotics and pesticides are used by the farmers without any control and with every risk of the presence of residues which may harm public health'.<sup>540</sup>

Following further American, Dutch and Scandinavian rejections of British meat, MAFF scrambled to restore trust in £ 150 million of annual meat exports:<sup>541</sup>

If we are to avoid placing our export meat trade in jeopardy, and one could argue that it is already on the brink, (...), it is imperative that a more positive policy on 'residues in meat' be formulated and that as a start we attempt to ascertain the degree of our meat residue problem.<sup>542</sup>

In April 1976, the Steering Group On Food Surveillance set up a Working Group on Antibiotic Residues in Food and tasked it with establishing a national meat monitoring programme.<sup>543</sup> With the EEC Third Countries Directive supposed to come into force in January 1977, the Steering Committee's Sub-Group discussed different tolerance levels for antibiotic residues in meat. However, committee members were warned that Britons "should not fall into the same trap as the Americans where improvements in methodology meant that negative sample[s] [were] suddenly [sic] regarded as contaminated."<sup>544</sup> At the end of its meeting, members agreed to launch a second limited survey: samples were to be screened using standard EEC bacterial inhibitor tests - so-called 'Frontier Post Tests'. Should bacterial growth be inhibited on test dishes, electrophoresis screening would identify the inhibiting substance.<sup>545</sup>

However, the Sub-Group soon experienced familiar difficulties. By 1977, it had only managed to establish a preliminary export-monitoring programme of four samples per week. Exacerbating problems, the group was denied statutory access to abattoirs and the Port and Air Health Authorities only sent 40 samples in four months instead of the promised 50 weekly samples.<sup>546</sup> Unable to trace residues back to producers,<sup>547</sup> analysts

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539<sup>□</sup>Cf. TNA MAF 461/67 (Steering Group on Food Surveillance Sub-Group on Antibiotic Residues in Food, 1<sup>st</sup> Meeting, 20 Apr, 1976), pp. 5 and 7; cf. also: TNA MAF 282/186 (Norman D Baird to RV Blamaire, 'Residues in Meat - Some Pertinent Facts', 4 Aug, 1976), p. 2.

540<sup>□</sup>Ibid.

541<sup>□</sup>Cf. TNA MAF 461/67 (J.A. Davies to J.E. Tugwell, 16 Nov, 1977), p. 1.

542<sup>□</sup>TNA MAF 282/186 (Norman D Baird to RV Blamaire, 'Residues in Meat - Some Pertinent Facts', 4 Aug, 1976), p. 4.

543<sup>□</sup>Cf. TNA MAF 461/67 (Steering Group on Food Surveillance Sub-Group on Antibiotic Residues in Food. Draft Terms of Reference, Mar, 1976); the sub-group later seems to have merged with the Working Party on Veterinary Residues in Meat and Meat Products of the Steering Group on Food Surveillance; cf. MAF 461/68 (Minute, A.W. Hubbard to W. Barker, 1978), p. 2.

544<sup>□</sup>TNA MAF 282/186 (Steering Group on Food Surveillance. Sub-Group on Antibiotic Residues in Food. Minutes of the 1<sup>st</sup> meeting of the Sub-Group held on 30 Apr, 1976), p. 6.

545<sup>□</sup>Ibid., p. 7.

546<sup>□</sup>TNA MAF 461/67 (Notes of meeting, UK Drug Residue Monitoring Programme, 1977), p. 1.

547<sup>□</sup>Cf. Ibid., p. 2; cf. also MAF 461/69 (Minute, A.W. Hubbard to W. Barker, 1978), p. 2-3.

were also denied access to confidential VPC information on residue detection techniques.<sup>548</sup>

In spite of these problems, the re-named Working Party on Veterinary Residues in Meat and Meat Products presented results in mid-1978: between July 1977 and March 1978, scientists had analysed 933 samples. Voluntarily selected and sent by 23 of the UK's 25 export abattoirs, samples had been tested using the EEC frontier-post test. According to the study, the incidence of positive tests was below 0.3%.<sup>549</sup> However, an attached note warned that results were compromised. In the case of 153 samples sent from Smithfield, analysts noted:

Many liver and a proportion of the kidney and beef samples were of extremely poor quality and it is likely that they would have been unfit for human consumption. Certain livers were green and strong smelling, and really should not have been tested.<sup>550</sup>

Although later samples were of better quality,<sup>551</sup> the working group cautioned that some samples had thawed before reaching analysts and did not include kidneys or livers – key organs for residue tests.<sup>552</sup> Reflecting on the many problems hampering monitoring in 1978, an official bitterly noted:

Some of our colleagues in Europe not only have centralised powers of inspection but they have considerable facilities for full veterinary and chemical investigations on stock, both pre- and post-slaughter.<sup>553</sup>

In spite of the study's dubious nature, MAFF representatives used the compromised results to reassure trade partners. During an informal meeting with Americans and Canadians, MAFF officials admitted that there “was the possibility of certain unauthorised use of antibiotics”<sup>554</sup> in Britain. However, “the industry was a closely integrated one [and] any widespread abuse would be known about and would be quickly publicised.”<sup>555</sup> With surprising confidence in the survey's results, one official boasted:

It clearly came as something of a surprise to the American and Canadian delegates to realise the extent to which a combination of administrative and legal provisions could be effective. They had clearly heard, although they did not say

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548 TNA MAF 461/68 (Steering Group on Food Surveillance. Working Party on Veterinary Residues in Meat and Meat Products, 1<sup>st</sup> Meeting, 29 Jul, 1977), p. 3.

549 TNA MAF 461/68 (Working Party on Veterinary Residues in Meat and Meat Products. Antibiotic Residues in Meat Taken from Export-Licensed Abattoirs in UK)

550 TNA MAF 461/68 (Working Party on Veterinary Residues in Meat and Meat Products. Antibiotic Residues in Meat Taken from Export-Licensed Abattoirs in UK; Annexe: Antibiotic Residues in Imported Meat), p. 1.

551 Cf. Ibid.

552 Cf. TNA MAF 461/68 (Working Party on Veterinary Residues, Draft Report to the Steering Group On Food Surveillance, Note of 2<sup>nd</sup> meeting, 17 Jul, 1978).

553 TNA MAF 461/68 (Minute, A.W. Hubbard to W. Barker, 1978), p. 2.

554 TNA MAF 461/67 (Minute, J. Morey to Mr. Giles, 30 Jan, 1978), p. 1.

555 Ibid., p. 1-2.

(...) that the so-called loop-holes in the law, plugged only by administrative recommendations, were less than effective.<sup>556</sup>

During subsequent EEC negotiations, British officials adopted a different tone. Suggested by Germany and Denmark, EEC monitoring was to analyse a fixed percentage of total meat imports and intra-community trading.<sup>557</sup> Struggling with its limited pilot programme, MAFF was naturally opposed to such extensive monitoring. Instead, British officials looked to the US, where the USDA's Meat and Poultry Inspection was based on binominal probability theory. At the heart of the American system lay the assumption that analysing a small amount of completely randomized meat samples would enable authorities to extrapolate the probable degree of total meat contamination. In practice, the USDA annually analysed 300 randomized samples per animal class (pigs, calves, beef cattle, etc.). If no residues were found, authorities could claim with 95% certainty that 99% of animals in that class were free of residues. Should residues be found, a second stage of intensive sampling would reveal local offenders.<sup>558</sup> For British authorities, this meant that instead of annually analysing 5.200 samples under the proposed percentage scheme, they would only have to analyse ca. 1.800 samples.<sup>559</sup> Commenting on the USDA's system, a hand-written minute declared:

I don't pretend to understand the computerised scheme but it would seem that a large number of cattle (...) are slaughtered and (...) a small number of samples (...) are taken. It would also appear that only 5 officials + 1 senior officials are actually engaged in the organisation plus staff of computer operators, microbiologists, etc.<sup>560</sup>

Because of their different opinions, national delegations clashed over monitoring requirements during a meeting of the residue sub group of the EEC's working party on veterinary legislation in May 1978.<sup>561</sup> Reporting on the meeting, a British delegate noted that probability-based sampling had led to a "good deal of acrimonious discussion with the German representative proving the most vocal."<sup>562</sup> According to the official, opponents had talked "a good deal of nonsense (...) about the willingness of consumers to pay for extra protection."<sup>563</sup> Rather ingloriously, Britain also lobbied to prevent mandatory drug withdrawal periods, monitoring of meat products - as opposed

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<sup>556</sup> Ibid., p. 2.

<sup>557</sup> Cf. TNA MAF 282/198/1 (Submission to the Parliamentary Secretary, MAFF National Meat Residue Monitoring Programme, Food Science Division, Appendix C, February 1980); cf. also draft directives 4850/VI/77 (1977) and 728/VI/78 (1978).

<sup>558</sup> TNA MAF 461/67 (Notes of meeting, UK Drug Residue Monitoring Programme, 1977), p. 1.

<sup>559</sup> TNA MAF 461/67 (Minute, E. Owen to J. Morey, 16 Dec, 1977), p. 1; Cf. also TNA MAF 461/68 (Meat Residue Monitoring Programme), p. 3.

<sup>560</sup> TNA MAF 461/67 (Minute (undated), Monitoring of Drug Residues, FCN 228).

<sup>561</sup> The UK's position had been pre-determined by the Ministry of Agriculture in April 1978; cf. TNA MAF 461/68 (Minute, J. Ardley to R.D. Martin, April 1978).

<sup>562</sup> TNA MAF 461/68 (EEC, Summary Report of Meeting with Representatives of Community Institutions or Of Member Governments, 'Working Party 'Veterinary Legislation' Sub-Group 'Residues' (25-26.05.1978), 'Draft Directives on Undesirable Residues in Fresh Meat', 30 May, 1978), p. 2.

<sup>563</sup> Ibid.

to fresh meat – and tests for pesticide and heavy metal residues.<sup>564</sup> While Britain was successful in toppling pesticide monitoring and antibiotic residue limits, the EEC compromised between German and British monitoring suggestions by mandating preliminary probability – based residue surveys. Revealing national levels of meat contamination, the surveys would indicate whether more extensive testing was necessary. Meanwhile, individual member states were free to adopt more extensive monitoring requirements.<sup>565</sup>

As a consequence of the EEC compromise, Britain launched pilot-testing for pre-selected slaughterhouses in 1980.<sup>566</sup> However, instead of mandating statutory controls, the UK continued to rely on voluntary industry-cooperation. In theory, slaughterhouses could manipulate supposedly random findings by sending only uncontaminated samples to inspectors at Reading’s Veterinary Investigation Centre.<sup>567</sup> Justifying the pilot study, MAFF officials made clear where their allegiance lay: “this exercise is in no way a policing operation; it is simply an attempt to gain representative data with which to negotiate effectively and ensure that there are no more controls than are absolutely necessary.”<sup>568</sup> In total, measures were projected to cost £ 20,000 p.a. with additional resources required for meat exports to countries with tougher requirements such as Germany and the Netherlands.<sup>569</sup> A decade after Swann, British meat destined for foreign countries was thus subject to stricter controls than British meat destined for British tables.

In 1982, the interdepartmental Steering Group on Food Surveillance submitted its first national residue survey. According to the report, officials had received ca. 300 randomized voluntary samples per animal class. Employing the language of probability, the survey claimed with 95% certitude that less than 1% of cattle, calf, sheep and pig kidneys and meat contained antimicrobial agents above permitted tolerance limits. Meanwhile, sulphamidine was probably present in less than 4% of British meat. Antimicrobial residues in poultry products were not measured.<sup>570</sup> However, the survey’s projections had to be taken with a grain of salt. In a parallel study of German-bound meat exports, 19 out of 61 samples (31.2%) tested positive for

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<sup>564</sup>Cf. Ibid., pp. 1-4.

<sup>565</sup>Cf. MAF 282/198/1 (Submission to the Parliamentary Secretary, MAFF National Meat Residue Monitoring Programme, Food Science Division, Appendix C, February 1980).

<sup>566</sup>MAF 282/198/1 (Submission to the Parliamentary Secretary, MAFF National Meat Residue Monitoring Programme, Food Science Division, February 1980), p. 2.

<sup>567</sup>Cf. Ibid.

<sup>568</sup>TNA MAF 282/198/1 (Sampling of meat for Residue Investigations); cf. also TNA MAF 282/199 (Minute, LG Mitchell to Mr Fry, Attached: Meat Inspection Review. State Veterinary Service National Surveillance Scheme for Residues in Meat, 10 Aug, 1984), p. 3.

<sup>569</sup>Ibid., p. 3.

<sup>570</sup>Cf. TNA MAF 461/70 (Working Party On Veterinary Residues In Meat And Meat Products, National Meat Monitoring Programme Year 1 Results, 13 Oct, 1982), p. 7

antibiotics. A previous study of 88 samples had found 7 positive results (ca. 8%).<sup>571</sup> Positives in both studies far exceeded national projections.<sup>572</sup>

While high levels of the recently banned hormone stilbene made MAFF delay publishing the 1982 survey,<sup>573</sup> the 1983 national residue survey revealed that stilbene contamination had sunk to 4% of British cattle, calf and pig meat. According to the 1983 survey report, antibiotic testing had been extended to include samples of 707 adult bovines, 779 calves, 729 pigs and 734 sheep.<sup>574</sup> In total, 1% of pig and sheep, 2% of cattle and 3% of calf samples tested positive for antibiotic residues – individual antibiotics were not determined.<sup>575</sup> Meanwhile, over 27% of pig and 5% of cattle samples tested positive for sulphonamide residues.<sup>576</sup> Worried about the results, MAFF warned “that other Members States (...) could take action against our exports.”<sup>577</sup>

Facing parallel revelations about illegal antibiotic trading, Britain was beginning to reap the consequences of inadequate monitoring and enforcement systems. With residue data accumulating, officials still lacked statutory powers to trace residues back to offenders.<sup>578</sup> Responsible for sampling, state-employed MAFF veterinarians were often afraid to jeopardize relationships with local farmers and slaughterhouses. Whereas corporatist gentlemen’s agreements were decreasing at the ministerial level, local officials continued to depend on these arrangements. In a memorandum, two divisional veterinary officers warned:

The additional information requested is not readily available from the slaughterhouses and as we (...) have to charm the (...) managers to get the samples, they might react adversely if we asked for more, ...<sup>579</sup>

Meanwhile, other MAFF veterinarians considered sampling beneath their dignity. In a particularly crass statement, veterinary officer RS Beynon complained about being subjected to “field donkey work”<sup>580</sup> and having to report “lot numbers, size of batches, information on farm of origin, etc.”<sup>581</sup> Afraid of straining “existing

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571 TNA MAF 461/70 (Working Party on Veterinary Residues in Meat And Meat Products, Antimicrobial Agents in Muscle and Kidney, results from Abattoirs exporting to West Germany)

572 Cf. also TNA MAF 461/70 (Laboratory Report No. 82/11), p. 2.

573 Cf. TNA MAF 282/199 (Antimicrobial and Hormone Residues in meat, Submission to the Parliamentary Secretary, Food Science Division, Meat Hygiene Division, Sep 1983), p. 1.

574 TNA MAF 282/199 (Antimicrobial and Hormone Residues in meat, Submission to the Parliamentary Secretary, Food Science Division, Meat Hygiene Division, Sep 1983), Annex II.

575 TNA MAF 461/70 (Laboratory Report No. 82/11), p. 2.

576 TNA MAF 282/199 (Antimicrobial and Hormone Residues in meat, Submission to the Parliamentary Secretary, Food Science Division, Meat Hygiene Division, Sep 1983), p. 2.

577 Ibid., p. 4.

578 This was particularly obvious in the case of hormone offenders; cf. TNA MAF 282/199 (LG Mitchell to Mr. McKerrel, Residues in Meat, 9 Aug, 1984).

579 TNA MAF 282/199 (Memorandum: From DVO MAFF to Mr JA Grisedale, DRVO (Reading) and Mr JM Threlkeld, RVO (Reading), 9 Feb, 1983).

580 TNA MAF 282/199 (RS Beynon to Mr Jenkinson, 18 Feb, 1983), p. 1.

581 Ibid.

relations,”<sup>582</sup> Beynon wanted to pay slaughterhouses for samples and threatened sabotage:

If I sample a pig and I (...) know that antibiotics will be present, can I have a guarantee that there will be no request for an approach to the farmer? If not, I am going to be selective in my samples. If a guarantee can be given, then there is no point in giving the origin of the sample.<sup>583</sup>

Concluding his letter, Beynon announced that the Food Science Division “should do their own donkey work”<sup>584</sup> and that his views were “shared by [his] immediate colleagues.”<sup>585</sup>

Unfortunately for Beynon, 1983 saw European Directive 83/91/EEC mandate harmonised residue monitoring for the intra-community meat trade by 1985.<sup>586</sup> In response, the British government formalised its National Meat Monitoring Programme (NMMP). It also handed over responsibility to the State Veterinary Service (SVS), which promptly renamed the NMMP into the National Sampling Scheme (NSS). Starting work on January 1<sup>st</sup> 1984, the NSS continued to rely on random sampling and voluntary sample provisioning.<sup>587</sup> Picking up the samples during routine visits, MAFF health officers were instructed “to record all the information which is available at the slaughterhouse as to the premises of origin of the sampled animal.”<sup>588</sup> Subsequently, samples were sent to Veterinary Investigation Centres in Newcastle or Worcester for antibiotic residue testing and to Weybridge for anabolic residue testing. Financed by MAFF, the NSS was incredibly cheap at ca. £8,000 p.a. – exports for German or Dutch markets continued to require further testing.<sup>589</sup>

Meanwhile, the EEC began mandating samples’ traceability and follow-up sampling after positive residue tests. Furthermore, member states were to make the slaughtering of residue-laden animals illegal.<sup>590</sup> For the SVS, the new EEC sampling proposals were “excessive”, “costly to operate” and might “cause problems for our export trade.”<sup>591</sup> Eager to ensure “sensible Community rules,”<sup>592</sup> the UK successfully delayed the introduction of EEC residue reforms for four years. Nonetheless, new EEC regulations forced British authorities to expand mandatory meat

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<sup>582</sup>*Ibid.*, p. 2.

<sup>583</sup>*Ibid.*, p. 2.

<sup>584</sup>*Ibid.*, p. 1.

<sup>585</sup>*Ibid.*, p. 2.

<sup>586</sup>*Cf.* TNA MAF 282/199 (Minute, LG Mitchell to Mr Fry, 10 Aug, 1984; attached, Meat Inspection Review, EEC proposals to Control Residues in Meat for Intra-Community Trade), pp. 1-2.

<sup>587</sup>*Cf.* TNA MAF 282/199 (Minute, LG Mitchell to Mr Fry, 10 Aug, 1984; attached, Meat Inspection Review, State Veterinary Service National Surveillance Scheme for Residues in Meat), pp. 1-3.

<sup>588</sup>*Ibid.*, p. 2.

<sup>589</sup>*Ibid.*, p. 4.

<sup>590</sup>*Cf.* TNA MAF 282/199 (Minute, LG Mitchell to Mr Fry, 10 Aug, 1984; attached, Meat Inspection Review, EEC proposals to Control Residues in Meat for Intra-Community Trade), pp. 1-3.

<sup>591</sup>*Ibid.*, p. 4.

<sup>592</sup>*Ibid.*

sampling to 4,000 samples in 1988 and 28,000 in 1989.<sup>593</sup> In the same year, the newly established Veterinary Medicines Directorate (VMD) was placed in charge of veterinary licensing, enforcement and meat surveillance with the once powerful VPC as an advisory committee.<sup>594</sup>

While international pressure and domestic scandals prevented Britain from ignoring residue problems, Margaret Thatcher and her successor John Major maintained an instinctive distaste for state intervention. As a consequence, neoliberal doctrines informed many food safety measures of the early 1990s: founded amidst salmonella and BSE scares, the new VMD was financed by the very industry it was supposed to monitor.<sup>595</sup> Writing to his Secretary of State for Agriculture in 1992, John Major announced that he was “absolutely determined to reduce the burden of regulation.”<sup>596</sup> In response, MAFF affirmed its hostility towards EC intervention: “Most other member States have a less liberal tradition than we do.”<sup>597</sup> Eager to reassure Major, MAFF announced that it favoured informal action and was “pressing local authorities to avoid an over-zealous approach.”<sup>598</sup>

Nonetheless, pressure for further regulation steadily increased. During the 1970s, a comparative paucity of data had made it easy to either downplay or ignore problems. However, by 1990, EEC-mandated surveillance regimes were increasing the cost of political inaction: the more one knew the more one had to do. Having neglected domestic reforms and opposed rather than shaped EEC measures, British officials may well have thought that they were being sucked into a bottomless pit of state intervention.

With cases of salmonella still rising despite culling,<sup>599</sup> 1992 saw 200 of 780 English and Welsh slaughterhouses lose their export licences and close because of stricter EC hygiene regulations.<sup>600</sup> In the same year, the Expert Group on Animal Feedingstuffs supported calls for more state intervention. Headed by the already familiar Prof Eric Lamming, the so-called Lamming committee identified “gaps in legislation

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593 James Erlichman, ‘Drug traces found in abattoir carcasses’, *Guardian*, 18.01.1988, p. 4.

594 Cf. Food, ‘Report on Microbial Antibiotic Resistance in Relation to Food Safety’, p. 146.; Richard Young et al., *The Use and Misuse of Antibiotics in UK Agriculture. Part 2: Antibiotic Resistance and Human Health* (Bristol: Soil Association, 1999), p. 42.; Feedingstuffs, ‘The Report of the Expert Group on Animal Feedingstuffs to the Minister of Agriculture, Fisheries and Food, the Secretary of State for Health and the Secretaries of State for Wales, Scotland and Northern Ireland (Lamming Report)’, p. 43.

595 Cf. **Soil Association report**

596 TNA MAF 422/32 (Confidential Minute, Prime Minister (John Major) to Secretary of State For Agriculture, 30 Nov, 1992), p. 1.

597 TNA MAF 422/32 (Confidential Minute, Prime Minister (John Major) to Secretary of State For Agriculture, 30 Nov, 1992; attached, *Deregulation and Food Law, Background*), p. 2.

598 *Ibid.*, p. 3.

599 Smith et al., *Food Poisoning, Policy and Politics. Corned Beef and Typhoid in Britain in the 1960s*, p. 305.

600 Koolmes, ‘Veterinary Inspection and Food Hygiene in the Twentieth Century’, p. 64.; the Fresh Meat (Hygiene and Inspection) Regulations were based on European Community Directive 91/497.



and its enforcement.”<sup>601</sup> According to the committee, *Salmonella typhimurium* isolates from British cattle showed rising levels of multiple antibiotic resistance. In 1981, 15% of isolated strains had been multiple resistant. Nine years later, the percentage of multiple-resistant strains had risen to 66%.<sup>602</sup> In poultry, resistance levels of *S. typhimurium* rose from 2% in 1981 to 8% in 1990.<sup>603</sup> Alarmed, the Lamming Committee recommended extending routine resistance monitoring from human *Salmonella* isolates to human *E. coli* isolates and assessing possible cross-resistance in the case of apramycin.<sup>604</sup> In conjunction with the VPC, the Lamming committee urged discouraging the “prophylactic use of antibiotics with cross-resistance to those used in human medicine.”<sup>605</sup> Addressing a significant regulatory gap, the Lamming Committee also recommended changing rules whereby veterinary prescriptions allowed manufacturers to send diluted antibiotic and POM substrates directly to farmers for home-mixing.<sup>606</sup>

Addressing problems already encountered by the JSC, the Lamming committee also recommended reforming residue monitoring. Whereas EC Directive 70/524 obliged manufacturers to publicize information on the detection of antibiotic feed additives, similar regulations did not apply to POMs. In Britain, manufacturers were obliged to inform the VPC about detection methods, which continued to treat industry information as confidential and did not communicate it to enforcement authorities.<sup>607</sup> As a consequence of such practices, “no single committee has an overview of all feedingstuff issues.”<sup>608</sup>

However, the Lamming report failed to arouse general interest:<sup>609</sup> making mockery of the report one year later, the VPC approved the use of enrofloxacin in animals. A fluoroquinolone antibiotic, enrofloxacin was closely related to ciprofloxacin – the only antibiotic effective against anthrax.<sup>610</sup> Permission was given despite parallel concerns about the “rapid emergence of resistance in campylobacters following enrofloxacin use in poultry and despite information from the Netherlands that its use had contributed to the emergence of ciprofloxacin-resistant campylobacters.”<sup>611</sup>

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601<sup>¶</sup>Cf. Feedingstuffs, 'The Report of the Expert Group on Animal Feedingstuffs to the Minister of Agriculture, Fisheries and Food, the Secretary of State for Health and the Secretaries of State for Wales, Scotland and Northern Ireland (Lamming Report)', p. 3.

602<sup>¶</sup>Ibid., p. 47.

603<sup>¶</sup>Ibid.

604<sup>¶</sup>Cf. Ibid., p. 48.

605<sup>¶</sup>Ibid.

606<sup>¶</sup>Ibid., pp. 45-47.

607<sup>¶</sup>Cf. Ibid., p. 70.

608<sup>¶</sup>Ibid., p. 75.

609<sup>¶</sup>Cf. the brief agricultural mention of the report: 'On-farm mixers to be listed', *BF* 8/7 (Aug 1992), p. 20; 'BSE controls in Britain are effective, says report', *FW* 117/5 (31.07.1992), p. 19.

610<sup>¶</sup>Cf. Standing Medical Advisory Committee. Subgroup on Antimicrobial Resistance, 'The Path of Least Resistance', (1998), p. 78.

611<sup>¶</sup>Ibid.

Such complacency was no longer possible following the BSE crisis. Although antibiotic reform emerged as a flagship issue, the conservative administration failed to feel the winds of change. Unable to lift European bans on British beef,<sup>612</sup> the Major government was reluctant to commit itself to EU-driven antibiotic reform just ahead of the general elections on May 1<sup>st</sup> 1997. While the EU's Scientific Committee for Animal Nutrition (SCAN) also opposed the avoparcin ban, the Committee of Experts on Feed Additives and the EU Commission both supported the ban. In contrast to SCAN, both bodies considered the evidence linking avoparcin-use to bacterial resistance against the reserve antibiotic vancomycin sufficient.<sup>613</sup> Similar to the EEC hormone ban, British opposition was overruled and a European avoparcin ban was passed on April 1<sup>st</sup> 1997.<sup>614</sup>

Elected in May 1997, the Blair administration strengthened state intervention and consumer protection. According to Labour's election manifesto, the “£3.5 billion BSE crisis”<sup>615</sup> necessitated the establishment of an independent Food Standards Agency (FSA). Responsible to the Department of Health, the FSA promised to solve the conflict between business and consumer interests, which had been institutionalised by MAFF. Following the FSA's launch in April 2000, MAFF was disbanded in 2001 and turned into the Department for Environment, Food and Rural Affairs (DEFRA). While the VMD retained responsibility for residue monitoring, DEFRA was responsible for the control of food-borne zoonosis. Founded in 1995 and headed by the DEFRA-employed Chief Veterinary Officer, the Meat Hygiene Service turned into the FSA's executive agency.<sup>616</sup>

Meanwhile, a steady stream of high profile reports demanded further antibiotic reform. Held in Berlin in October 1997, a WHO meeting on “The Medical Impact of Antimicrobial Use in Food Animals”<sup>617</sup> received widespread attention in expert circles.<sup>618</sup> In its report, the conference addressed rising bacterial antibiotic resistance and antimicrobial residues in food. In particular, it bemoaned the lack of long-term studies on agricultural antibiotics and resistance. According to the WHO report, improved monitoring would foster prudent use of antimicrobials, promote international collaboration and standardize monitoring efforts. Following this line of thought, the

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612<sup>□</sup>Cf. Charles Bremner and Andrew Pierce, ‘European Court rejects move to suspend beef ban’, *Times*, 13.07.1996, p. 14; Lezaun and Groenleer, ‘Food Control Emergencies and the Territorialization of the European Union’, pp. 439-41.

613<sup>□</sup>Cf. Resistance, ‘The Path of Least Resistance’, p. 78.

614<sup>□</sup>Cf. Bud, *Penicillin: Triumph and Tragedy*, p. 205.

615<sup>□</sup>New Labour because Britain deserves better, 1997, URL: <http://www.labour-party.org.uk/manifestos/1997/1997-labour-manifesto.shtml> (accessed: 24.10.2013).

616<sup>□</sup>Cf. Smith et al., *Food Poisoning, Policy and Politics. Corned Beef and Typhoid in Britain in the 1960s*, pp. 307-08.

617<sup>□</sup>The Medical Impact of Antimicrobial Use in Food Animals. Report of a Who Meeting. Berlin, Germany, 13-17 October 1997. ', (1997).

618<sup>□</sup>Cf. Ibid., p. 3.

committee specified monitoring requirements for *Salmonella*, *E. coli*, *Campylobacter jejuni* and *Enterococcus* in humans, animals and food.<sup>619</sup>

In 1998, the problem of antimicrobial resistance was addressed by three further major conferences. Meeting in Geneva in early April, the WHO advocated strengthening its 1996 Antimicrobial Resistance Monitoring Programme.<sup>620</sup> Significantly, the WHO expressed concern about “non-medical uses of antimicrobials”<sup>621</sup> and recommended expanding resistance monitoring in the field of “zoonotic pathogens” and improving “the rational use of antimicrobials in the animal health area.”<sup>622</sup> Tasked with assessing industry-government collaboration, a WHO working group renewed demands for industry sales data on agricultural antibiotic.<sup>623</sup>

Two months later, another WHO gathering addressed the “Use of Quinolones in Food Animals and Potential Impact on Human Health.”<sup>624</sup> Focussing on quinolone antibiotics, the WHO committee analysed the spread of quinolone resistant *Staphylococcus aureus*, *E. coli*, *Streptococcus pneumoniae*, *Campylobacter* and *Salmonella*.<sup>625</sup> Marketed as Baytril, Bayer’s fluorinated quinolone antibiotic enrofloxacin – a so-called fluoroquinolone – was particularly popular in European and US agriculture.<sup>626</sup> However, following the 1988 introduction of fluoroquinolones to German agriculture, fluoroquinolone resistant variants of the *S. typhimurium* clone DT204c had quickly reached “a prevalence of 50%”<sup>627</sup> in calf isolates from a defined area. As the main causes of bacterial gastroenteritis, fluoroquinolone resistant variants of *S. typhimurium* DT104 and *Campylobacter* posed threats to public health.<sup>628</sup> While it remained difficult to link resistant animal strains to actual health damage,<sup>629</sup> the WHO admonished veterinarians to reduce prescriptions and warned against using quinolones “for performance enhancement.”<sup>630</sup>

In September 1998, the EU organised a conference titled “The Microbial Threat”<sup>631</sup> in Copenhagen. With European CMOs attending, the over 400 participants stressed the necessity of gathering data on European antibiotic consumption and

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619<sup>¶</sup>Cf. Ibid., p. 13.

620<sup>¶</sup>Cf. World Health Organization, 'Antimicrobial Resistance Monitoring: Information Exchange and Opportunities for Collaboration. Report of the Second Joint Who/Ifpma Meeting, Geneva 2-3 April 1998', (1998).

621<sup>¶</sup>Ibid., p. 1.

622<sup>¶</sup>Ibid.

623<sup>¶</sup>Cf. Ibid., p. 9.

624<sup>¶</sup>World Health Organization, 'Use of Quinolones in Food Animals and Potential Impact on Human Health. Report of a Who Meeting, Geneva, Switzerland, 2-5 June 1998', (1998).

625<sup>¶</sup>Cf. Ibid., pp. 3-4.

626<sup>¶</sup>Cf. Ibid., pp. 9-10.

627<sup>¶</sup>Ibid., p. 7.

628<sup>¶</sup>Cf. Ibid., pp. 6-7.

629<sup>¶</sup>Ibid., p. 8.

630<sup>¶</sup>Ibid., p. 17.

631<sup>¶</sup>Cf. Tore Midtvedt, 'The Microbial Threat. The Copenhagen Recommendation', *Microbial Ecology in Health and Disease*, 10 (1998), p. 66.

establishing a European surveillance system for antibiotic resistance. Subsequently, monitoring results should inform regular policy reviews.<sup>632</sup> Fourteen days after the conference, the European Parliament and Council passed Decision No 2119/98/EC for the establishment of “a network for the epidemiological surveillance and control of communicable diseases in the Community.”<sup>633</sup> In January 1999, the European Antimicrobial Resistance Surveillance System (EARSS) began monitoring bacterial antibiotic resistance in humans and animals.<sup>634</sup>

In Britain, domestic pressure for antibiotic reform peaked in Spring 1998 with the publication of the House of Lords antibiotic review. Prompting the government to describe antibiotic resistance as a “major public health threat,”<sup>635</sup> the Lords acknowledged “a continuing threat to human health from imprudent use of antibiotics in animals.”<sup>636</sup> While the report mostly dealt with human medicine, the sections discussing agricultural antibiotic-use bore an uncanny resemblance to the Swann report. In charge of the committee, veterinarian Lord Soulsby had indeed been a close friend of the late Baron Swann.<sup>637</sup> According to the Lords, Britain had once “led the world in addressing the threat to human health posed by antibiotic use in farming practices with the Swann Report in 1969.”<sup>638</sup> “many believe that, had action been taken then, our present concerns would be much less than they are now.”<sup>639</sup> Criticising the JSC’s dissolution and inadequate monitoring, the Lords warned that “departmental and agency boundaries must not be allowed to prevent the Government from getting a grip on the whole of this issue.”<sup>640</sup> At the same time, the Lords recommended phasing out the growth promoter virginiamycin because of potential cross-resistance to the recently introduced analogue therapeutic antibiotic dalbapristin/ quinupristin (Synercid).<sup>641</sup> In general, the Lords believed that the “mass-treatment of herds (...) and flocks (...) with [antibiotic] agents cannot be best practice from the point of view of human public

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<sup>632</sup>Cf. Ibid., p. 67.

<sup>633</sup>Cf. ‘Decision No 2119/98/EC’, *Official Journal L 298* (03.10.1998), pp. 0001-0007; URL: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31998D2119:EN:HTML> (accessed: 25.10.2013).

<sup>634</sup>The organisation is now responsible to the European Centre for Disease Control (ECDC) and is known as EARS-Net; cf. EARS-Net website; URL: [http://www.ecdc.europa.eu/en/activities/surveillance/EARS-Net/about\\_network/Pages/history.aspx](http://www.ecdc.europa.eu/en/activities/surveillance/EARS-Net/about_network/Pages/history.aspx) (accessed, 06.12.2013).

<sup>635</sup>Department of Health, *Government response to the House of Lords Select Committee on Science & Technology report: Resistance to antibiotic and other antimicrobial agents*, 01.12.1998; URL: [http://webarchive.nationalarchives.gov.uk/+www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4006368](http://webarchive.nationalarchives.gov.uk/+www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4006368) (accessed, 04.04.2013).

<sup>636</sup>Select Committee Appointed to Consider Science And Technology, ‘Resistance to Antibiotics and Other Antimicrobial Agents: Report’, (London: House of Lords, 1998), p. 11.18.

<sup>637</sup>Cf. Bud, *Penicillin: Triumph and Tragedy*, p. 203.

<sup>638</sup>Technology, ‘Resistance to Antibiotics and Other Antimicrobial Agents: Report’, p. 11.19.

<sup>639</sup>Ibid.

<sup>640</sup>Ibid., p. 11.23.

<sup>641</sup>Cf. Ibid., p. 11.20.

health.”<sup>642</sup> Consequently, veterinarians should voluntarily reduce antibiotic-use: “we recommend self-regulation in preference to legislation.”<sup>643</sup>

Due to its focus on microbiological hazards and food safety, the House of Commons Select Committee on Agriculture made severer recommendations shortly afterwards.<sup>644</sup> Praising the Blair government for establishing a central Advisory Committee on Animal Feedingstuffs and proposing the FSA, the Commons Committee called for the “establishment of a rigorous, scientific and statistically reliable national food surveillance system.”<sup>645</sup> Dealing with agricultural antibiotics as “emergent threats,”<sup>646</sup> the committee recommended:

... a ban on the use of antibiotics in farming as growth promoters, and tighter restrictions on their use for subtherapeutic or prophylactic purposes. Every effort should be made to develop vaccines as alternatives to antibiotics for therapeutic purposes.<sup>647</sup>

Further increasing pressure for bans in 1998, the British Standing Medical Advisory Committee (SMAC) published a report creatively titled “The Path of Least Resistance.”<sup>648</sup> Commissioned by CMO Sir Kenneth Calman in July 1997, SMAC’s report described antibiotic growth promotion as “a major concern (...) undermining new antibiotics (...) even before these enter human use.”<sup>649</sup> According to SMAC, the 1950s separation of therapeutic and non-therapeutic antibiotics took no account of antibiotics’ many chemical inter-relations and was thus unable to prevent bacterial resistance:<sup>650</sup>

... the use of antibiotics in animals should be guided by the same principles as those for prescribing in humans – namely, they should be used only for those clinical conditions where their use is likely to provide a genuine health benefit (...). We recommend that alternative means of animal husbandry be developed so that the use of antibiotics as growth promoters can be discontinued.<sup>651</sup>

In particular, SMAC criticised veterinary prescription practices: “Disease control in animals is multi-faceted and the more traditional ‘fire-brigade’ responses without consideration of preventive measures are no longer acceptable.”<sup>652</sup>

Published in the same year, a Soil Association report estimated that British tetracycline use had risen by 1,500% and penicillin use had increased by 600% in the

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<sup>642</sup>Ibid., p. 11.21.

<sup>643</sup>Ibid.

<sup>644</sup>Cf. Select Committee On Agriculture, 'Fourth Report. Food Safety', (London: House of Commons, 1998).

<sup>645</sup>Ibid., p. IV.123.k.

<sup>646</sup>Ibid., p. IV.123.m.

<sup>647</sup>Ibid.

<sup>648</sup>Resistance, 'The Path of Least Resistance', p. 7.

<sup>649</sup>Ibid., p. 8.

<sup>650</sup>Cf. Ibid., p. 79.

<sup>651</sup>Ibid., pp. 11-12.

<sup>652</sup>Ibid., p. 80.

past 30 years.<sup>653</sup> According to the Soil Association, the incidence of tetracycline-resistant *Salmonella* had increased from ca. 15% in the early 1970s to over 80% in 1998.<sup>654</sup> Meanwhile, a report from the Consumers in Europe Group (CEG) called for “a rigorous precautionary approach to the use of antibiotics in both humans and animals.”<sup>655</sup> Advocating the assignment of POM-status to all antibiotics, CEG also attacked veterinarians and demanded a reduction of antibiotic-prophylaxis.<sup>656</sup>

One year after the Blair government’s endorsement of the EU’s 1998 growth promoter bans,<sup>657</sup> ACMSF justified the move in its “Report on Microbial Antibiotic Resistance in Relation to Food Safety.”<sup>658</sup> Opposing further growth promoter bans,<sup>659</sup> committee members were nonetheless concerned about bacterial resistance and cited German studies indicating rising streptomycin resistance in dairy cattle.<sup>660</sup> On farms, the ACMSF recommended monitoring the direct transmission of antibiotic resistance between animals and humans. Citing a Dutch study, the ACMSF gave the example of a farmer whose vancomycin-resistant *Enterococcus* (VRE) strains were indistinguishable from those of his turkeys.<sup>661</sup> Regarding veterinarians, ACMSF also addressed allegations of commercially motivated antibiotic over-prescription:

The sources of income in veterinary practice have changed considerably since World War II. (...). In the 1950s and 1960s, (...) many free sources of advice became available to farmers who were thus less inclined to pay for veterinary advice. In consequence, veterinary charges were skewed so that the decline in income from professional fees was offset by an increase in income from drug sales. (...). Drug sales account for possibly some 40 per cent of income.<sup>662</sup>

While the ACMSF had no “evidence that UK veterinarians are abusing prescribing practices in order to maximise revenue,”<sup>663</sup> it noted that Swedish veterinarians were prohibited from selling what they had prescribed. However, the ACMSF feared that such a system would lead to the closure of British veterinary practices and in turn increase the overall cost of veterinary advice.<sup>664</sup>

Addressing all issues of microbial resistance and food security, the ACMSF also tackled administrative and regulatory issues. In spite of the FEDESA’s parallel use of

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<sup>653</sup>Harvey and Mason, *The Use and Misuse of Antibiotics in Uk Agriculture. Part 1: Current Usage*, p. 3.

<sup>654</sup>*Ibid.*, p. 8.

<sup>655</sup>Group, *Antibiotic Resistance. The Risk to Human Health and Safety from the Use of Antibiotics in Animal Production (Ceg 98/2)*, p. 4.

<sup>656</sup>*Cf. Ibid.*

<sup>657</sup>*Cf. European Agency for the Evaluation of Medicinal Products. Veterinary Medicines Evaluation Unit, 'Antibiotic Resistance in the European Union Associated with Therapeutic Use of Veterinary Medicines. Report and Qualitative Risk Assessment with the Committee for Veterinary Medicinal Products, 14 July 1999.'*, (1999), pp. 3-4.; the vote endorsed Council Regulation (EC) No 2821/98.

<sup>658</sup>Food, 'Report on Microbial Antibiotic Resistance in Relation to Food Safety'.

<sup>659</sup>*Ibid.*, pp. 172-73.

<sup>660</sup>*Ibid.*, p. 64.

<sup>661</sup>*Ibid.*, p. 132.

<sup>662</sup>*Ibid.*, p. 151.

<sup>663</sup>*Ibid.*, p. 152.

<sup>664</sup>*Ibid.*

such data for lobbying purposes, the ACMSF committee complained that “for more than a year” they had “tried, unsuccessfully to discover the amounts of antibiotics used in animals in the UK.”<sup>665</sup> As a consequence, the committee advised establishing “a robust system to gather this information (...) as soon as possible.”<sup>666</sup>

Another issue attracting the ACMSF’s ire was inadequate record-keeping of antibiotic-use on farms.

Despite the statutory obligations imposed upon farmers in relation to the maintenance of on-farm treatment records, unpublished 1994 MAFF data throw serious doubts upon the effectiveness of the current arrangements. Of 100 farms visited in England, Wales and Scotland (...), 50 per cent did not have livestock medicine books. Where livestock medicine books were available, 50 per cent were either out of date by at least six months or had not been filled in at all. In all, only 25 per cent of the total farms visited had livestock farm medicine books that were completed and up to date.<sup>667</sup>

Despite VMD assurances that record-keeping was improving, the ACMSF criticised that 1,600 annual on-farm record inspections were insufficient to ensure compliance.<sup>668</sup> Referring to the 1992 Lamming report, the ACMSF also criticised that on-farm mixers remained exempt from medicated feedstuff provisions and that there was no way of preventing illegal recycling of medicated feed materials.<sup>669</sup>

Stimulated by such reports, the Labour administration increased its efforts to combat antibiotic resistance. In 1999, it founded DEFRA Antimicrobial Resistance Coordination (DARC). Working alongside the ACMSF and the Advisory Committee on Antimicrobial Resistance and Health Care Associated Infections (ARHAI), DARC was tasked with encouraging prudent antibiotic use and reviewing the significant growth of British resistance monitoring;<sup>670</sup> following 1998, Britain commenced large-scale susceptibility testing of veterinary pathogens and commensal organisms. In the 2000s, EU Council Directives 2003/99/EC and 2007/407/EC made resistance monitoring of *Salmonella* and *Campylobacter* isolated from food and animals statutory. National resistance reports have to be submitted to the EU and the European Food Safety Agency (WANN) on a regular basis. Although the UK provides this data, monitoring for *E. coli* and *Enterococci* resistance remains voluntary. However, according to the VMD, extended monitoring will soon become mandatory.<sup>671</sup>

Meanwhile, the VMD began compiling antibiotic sales data. Starting in 1999, industry figures were collected via voluntary arrangements. However, following 2005,

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<sup>665</sup> Ibid., p. 15.

<sup>666</sup> Ibid.

<sup>667</sup> Ibid., p. 147.

<sup>668</sup> Ibid., p. 155.

<sup>669</sup> Ibid., pp. 163-64.

<sup>670</sup> Cf. Defra Antimicrobial Resistance Coordination (DARC) Group, URL: [http://www.vmd.defra.gov.uk/public/antimicrobial\\_darc.aspx](http://www.vmd.defra.gov.uk/public/antimicrobial_darc.aspx) (accessed: 27.10.2013); responsibility for animal antimicrobial resistance policy passed to the VMD in 2011.

<sup>671</sup> I am indebted to the VMD for answering my questions regarding current antibiotic legislation following my correspondence with them on September 2<sup>nd</sup>, 2013.

statutory requirements for data submission were introduced.<sup>672</sup> Able to analyse older industry data, the VMD remarked that sales of veterinary antimicrobial products had risen sharply from 475 tons in 1993 to 629 tons in 1996. On average, 555 tonnes of veterinary antibiotics had been sold annually. Although figures did not reflect antibiotics' potency, the 1997 avoparcin ban had made sales fall to 522 tons in 1998.<sup>673</sup> Between 1993 and 1998, 83-90% of antibiotics had been sold for therapeutic purposes and 10-17% for growth promotion.<sup>674</sup> According to the VMD, pigs had received the greatest amount of antimicrobial substances – followed by poultry, cattle and fish.<sup>675</sup> After the 1998 bans, growth promoter use sank from 141 tonnes of active ingredient in 1998 to 67 tonnes one year later. With farmers and retailers foreseeing future bans, sales further decreased to 43 tonnes in 2001 and 36 tonnes in 2003.<sup>676</sup> Significantly, therapeutic antibiotic sales also decreased: In 1998, ca. 433 tonnes of active therapeutic antibiotics had been sold.<sup>677</sup> By 2006, sales had decreased to 356 tonnes but subsequently rose to 390 tonnes in 2010.<sup>678</sup> However, it is important to note that data on tonnage did not reflect antibiotics' potency.

Readdressing antibiotic residues in 2001, the British government installed an independent Veterinary Residues Committee (VRC) to advise the VMD and FSA. In the same year, the EU's Veterinary Medicinal Products Directive (2001/82/EC) fostered harmonised controls for the manufacture, authorisation, marketing and distribution of veterinary medicines and laid the foundation for the British Veterinary Medicines Regulations (VMR). Coming into force in October 2005, the VMR consolidated the plethora of controls previously contained in the 1968 Medicines Act and over 50 amending Statutory Instruments.<sup>679</sup> Both the VMR and the Directive 2001/82/EC remain open to public renegotiation via questionnaires.

Following 1997, successive administrations have addressed key concerns regarding agricultural antibiotics: they established systematic, regular and independent resistance and residue monitoring, gave authorities the statutory power to enforce compliance and accessed antibiotic sales data. In 2003, the Labour government also supported the decision to ban all remaining antibiotic growth promoters with Regulation (EC) No 1831/2003. Officials and the public are now regularly supplied with data on

<sup>672</sup>Cf. Veterinary Medicines Directorate, 'Sales of Antimicrobial Products Authorised for Use as Veterinary Medicines in the UK in 2011', (2012), p. 8.

<sup>673</sup>Veterinary Medicines Directorate, 'Sales of Antimicrobial Products Used as Veterinary Medicines, Growth Promoters and Coccidiostats in the UK from 1993-1998'.

<sup>674</sup>Ibid.

<sup>675</sup>Cf. Ibid.

<sup>676</sup>Veterinary Medicines Directorate, 'Revised Figures for Sales of Antimicrobial Products Used as Growth Promotes in the UK'.

<sup>677</sup>Directorate, 'Sales of Antimicrobial Products Used as Veterinary Medicines, Growth Promoters and Coccidiostats in the UK from 1993-1998'.

<sup>678</sup>Directorate, 'Sales of Antimicrobial Products Authorised for Use as Veterinary Medicines in the UK in 2011', p. 11.

<sup>679</sup>I am indebted to the VMD for answering my questions regarding current antibiotic legislation following my correspondence with them on September 2<sup>nd</sup>, 2013.



antimicrobial resistance, residues and antibiotic usage. Simply asserting that food is safe is no longer an option. At the same time, responsibilities have become clearer. Culprits can now be identified both within government and agriculture.

However, in other respects, Britain has remained tardy. In 2011, the EU Commission criticised Britain for infringing Directive 2001/82/EC by continuing to permit antibiotic advertisements to farmers. While the practice has been banned by the 2013 VMR-review<sup>680</sup> and farmers are now more regulated than ever, veterinarians remain surprisingly immune to tighter regulations. Although the statutory collection of antibiotic sales data is a huge improvement, there is still no collection of veterinary prescription data, which could put pressure on overprescribing individuals. With levels of agricultural antibiotic-use currently stagnating,<sup>681</sup> observers may wonder why separating economic interests from prescription rights – something achieved in human medicine in the 19<sup>th</sup> century<sup>682</sup> – should prove so difficult in the case of veterinary medicine and unpopular with the BVA. .<sup>683</sup>

Meanwhile, antibiotic resistance is still a major problem. In Spring 2013, CMO Dame Sally Davies warned that resistance was now “as big a risk as terrorism”<sup>684</sup> and should be added to the government’s national register of civil emergencies. Unfortunately, Davies’ warnings may well prove Cassandra-like should they fail to rouse interest outside expert circles. As this study has shown, British antibiotic reform resulted from two historical periods of major scandals during which agricultural antibiotics functioned as focal points attracting and bundling public fears. With memories of BSE fading, it is easy to forget that some of the most dangerous aspects of intensive animal husbandry remain unsolved.

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680<sup>□</sup>*Veterinary Medicines Regulations*, URL: <http://www.vmd.defra.gov.uk/public/vmr.aspx> (accessed: 27.10.2013); cf. also Letter VMD to all interested parties, ‘Veterinary Medicines Regulations – Changes to Advertising Rules’, (October 11<sup>th</sup>, 2012), p. 2; URL: [http://www.vmd.defra.gov.uk/pdf/vmr\\_letter1012.pdf](http://www.vmd.defra.gov.uk/pdf/vmr_letter1012.pdf) (accessed: 27.10.2013).

681<sup>□</sup>Cf. Veterinary Medicines Directorate, ‘Uk Veterinary Antibiotic Resistance and Sales Survey’, (2013).

682<sup>□</sup>Verweis

683<sup>□</sup>Riley Jonathan, ‘Vets angered by antibiotic claims’, *FW* (06.04.2012), p. 14.

684<sup>□</sup>Verweis

☒ Primärquellen in Bibl. Einarbeiten.

☒ Reports in Endnote formatieren, so dass URL angezeigt wird und nicht 'Nachname', Vorname in Bibliographie auftaucht.

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